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The Anatomical Variations presented by Two Cases of Twin Monsters, with an Account of their Developmental Explanation.

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SOME time ago Dr. F. W. N. Haultain placed in my hands two remarkable cases of twin monsters, at the same time requesting me to ascertain what were the anatomical variations present.

CASE I. Both the twins in this case, as in the second one, are females. The twins are united together along the lateral abdominal walls and possess two umbilical cords. The line of fusion and the position of the two cords are well seen in Plate 1. After having been hardened by means of formol injections the dissection was commenced by cautiously raising up a flap, the outlines of which are indicated in the first plate. The appearances presented after the removal of this flap are seen in Plate 2. At the line of junction of the twins there is what appears to be a septum with a liver on each side of it, and an umbilical vein passing to each liver. A further dissection (Plate 3) shows these appearances to be somewhat misleading. The apparently reduplicated liver is now seen to be a single viscus common to both twins, and the apparent septum is a falciform ligament, the only one which the twins possess. There are, however, undoubtedly two umbilical veins, one for each twin.

The liver was next removed, its appearances as viewed from the front are illustrated in Plate 4, whilst Plate 5 shows the organ as

seen from the right side. The liver is a single viscus common to both twins, and as viewed from the right side is seen to be almost completely divided into two parts—anterior and posterior—by a deep notch on its inferior surface. On replacing the liver in its original position it was ascertained that this notch was occupied by a single and transversely situated duodenal tube which passed from the pylorus of the one stomach to the pylorus of the other. Some conception of the position occupied by the liver whilst *in situ* will be obtained by referring to Plate 6 which illustrates the appearances presented after removal of that viscus. The general mass of the small intestine is seen to occupy the most dependent part of the common abdominal cavity. The highest part of this intestinal mass is the single transversely situated duodenal tube, upon which the liver sat, as it were, astride.

On removing the abdominal portions of the alimentary canals the singular appearances illustrated in Plate 7 were eventually elicited. There are two stomachs, each of which is 9 cm. long, connected together by a single duodenal tube, 12 cm. long. From this duodenal tube, at a point 7 cm. from the right pylorus, there commences a jejunum which assumes the form of a single tube common to both twins. The jejunum is 40 cm. in length and terminates quite naturally in the ileo-cæcal junction. The large intestine is perfectly regular in both twins.

With the exception of the foregoing points and the fact that the gall-bladder was suppressed, the twins are normal and well-formed, and had it not been for the embryological error responsible for these variations there can be no doubt that two perfectly normal and well-nourished twins would have resulted from the pregnancy.

Case II. As regards the second specimen a reference to Plates 8 and 9 shows that the condition of fusion of the twins is very similar to that in the first case, but is here more extensive. The fusion involves not only the lateral abdominal walls but also the lateral thoracic walls and two of the four upper limbs as far as the wrist. It will be unnecessary to pursue the successive stages of the dissection in this instance as they were identical with those of the first case. Precisely the same variations were found in connection with the alimentary canal and liver, the only alteration being that there was a gall-bladder in the second case and none in the first.

The heart and great vessels, as is only to be expected from the thoracic fusion present however, some remarkable and interesting variations. (See Fig. 1.) To take the great vessels first, there is, in the case of the right twin, a right sided aorta and a pulmonary

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PLATE II.

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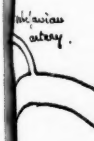

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trunk both of which arise from the same ventricle. The aorta gives off a large branch which communicates with the left pulmonary artery by means of a patent ductus arteriosus, and then breaks up in an axis-like manner into a left subclavian, a left common carotid and a right common carotid. The arch of the aorta thereafter gives off the right subclavian artery as a separate trunk.

In the case of the left twin there is a left sided aorta and a pulmonary trunk. The aorta gives off in the first instance a single trunk which divides into the right and left common carotid arteries. Immediately beyond the origin of this carotid trunk the arch gives

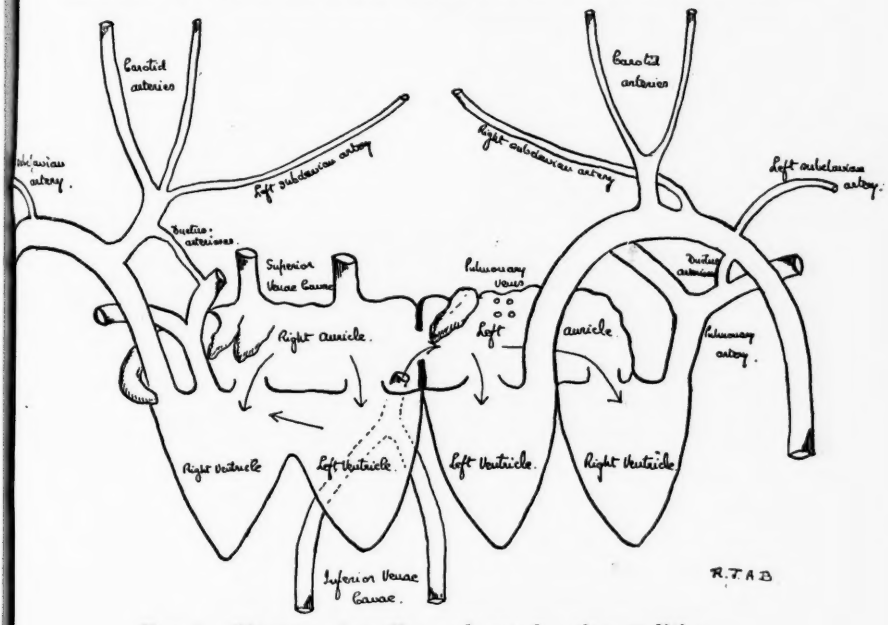


FIG. 1. Diagram of cardiac and vascular abnormalities.

off the right subclavian, and beyond that again the left subclavian. Having given off these three branches the aorta communicates with the left pulmonary artery by means of a patent ductus arteriosus. As regards the veins each twin is provided with its own superior vena cava, but the inferior venæ cavæ, just prior to their termination in the auricle, fuse together to form a single vessel.

Passing next to the consideration of the heart (Fig. 1) there is what at first sight appears to be a single viscus common to both twins. As this apparently single structure contains two auricles, four auricular appendages and four ventricles, it is fairly certain that

there have been two hearts which have become partially fused in the region of the sinus venosus. As just stated there are but two auricles. One of these is a functional right auricle for both twins. Opening into it there are the two superior venæ cavæ, the fused inferior venæ cavæ and a single coronary sinus. Opening out of it there are the apertures of three of the four auricular appendages, and the openings into the right and left ventricles of the heart of the right fœtus. There is also a well-marked fossa ovalis leading into what is functionally the left auricle and which undoubtedly belongs to the heart of the left fœtus. The left auricle, much smaller than the right, receives the four pulmonary veins, probably one from each of the four lungs, that is to say, the common pulmonary trunk from each lung has not divided into two, and hence there are only four pulmonary veins instead of eight. Opening out of the left auricle there is the orifice of one of the four auricular appendages and the openings into the right and left ventricles of the heart of the left fœtus.

The ventricles are four in number, their order from right to left is as follows:—Right ventricle, left ventricle, right twin; left ventricle, right ventricle, left twin. The right and left ventricles of the right twin communicate with each other and with the right auricle common to both twins. The aorta and pulmonary artery of the right twin arise from the right ventricle. The right and left ventricles of the left twin communicate with the left auricle common to both twins, but do not communicate with each other. The aorta and pulmonary artery arise normally from their correct ventricles.

The developmental explanation of the foregoing variations. The chief variations to be explained may be tabulated as follows:—

A. *Common to both cases.*

1. Lateral fusion, more extensive in one case than the other, and the common epiblastic covering of the fused areas.
2. The single duodenal and jejunal tubes and the single liver.
3. The suppression of the gall-bladder in the one case and its presence in the other.

B. *Special to the second case.*

4. The partial fusion of the heart and the peculiar condition of the auricles and ventricles.
5. The condition of the great thoracic vessels.

Bearing in mind the strong similarity which exists between the two cases as evidenced by the lateral fusion, more extensive in the second example than the first, and the precisely similar nature of the intestinal variations, it is fairly obvious that whatever explanation is attempted must suffice for both cases. A further consideration of

PLATE IV.

the alimentary variations shows that they are to be referred to that portion of the embryonic gut termed the mid-gut, and in my opinion these variations are entirely referable to the mid-gut, though this, as will be presently shown, is open to question, but putting the debateable point on one side, that is the origin of the liver whether from fore-gut or mid-gut, it is certain that the jejunum is a mid-gut development, and as both cases have only one jejunum it is safe to assume that the two embryos in each case have had only one yolk sac between them, that is to say, they have been developed from one ovum.

Commencing upon this hypothesis, and remembering the lateral nature of the fusion of the twins, I first assumed that two primitive

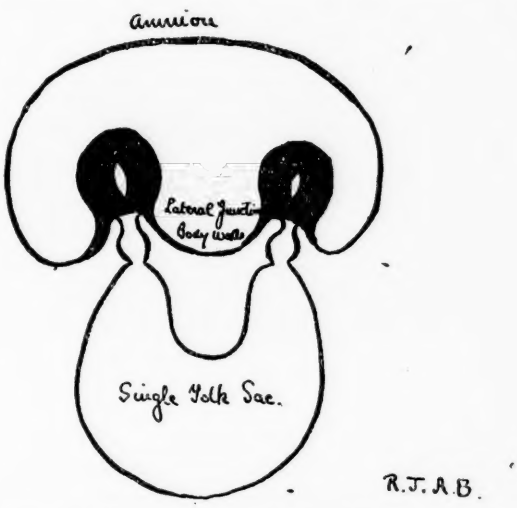


FIG. 2. Diagram to illustrate the body fusion.

grooves had been lying side by side upon a single ovum. I endeavoured to account for these two primitive grooves by assuming bilateral segmentation of the ovum, but I was forced to abandon this position as untenable inasmuch as if worked out it will be found to necessitate the formation of two yolk-sacs and two amnions, and their subsequent conversion into single structures by fusion. Quite apart from these objections there are others of an even more insuperable character, and consequently this supposition of bilateral segmentation of a single ovum was subsequently abandoned in favour of the following theory which appears to offer a more satisfactory explanation of the phenomena.

1. *The explanation of the lateral fusion and the common epiblastic covering of the fused areas.* This explanation is based on the supposition that the two embryos have been developed from a single ovum *without* bilateral segmentation. The two primitive grooves were placed side by side in such a way that the caudal ends of the embryos have been rather nearer to each other than the cephalic ends, or at all events the central portions of the primitive grooves have either been nearer each other than any other portions, or have

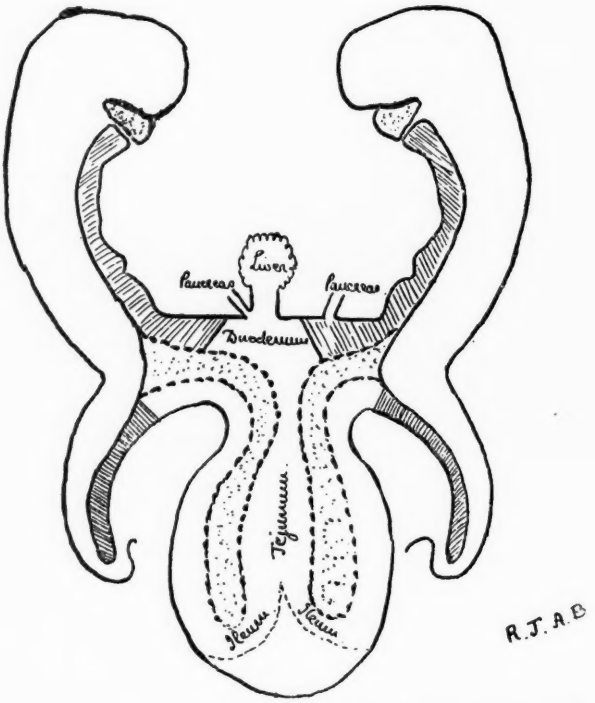
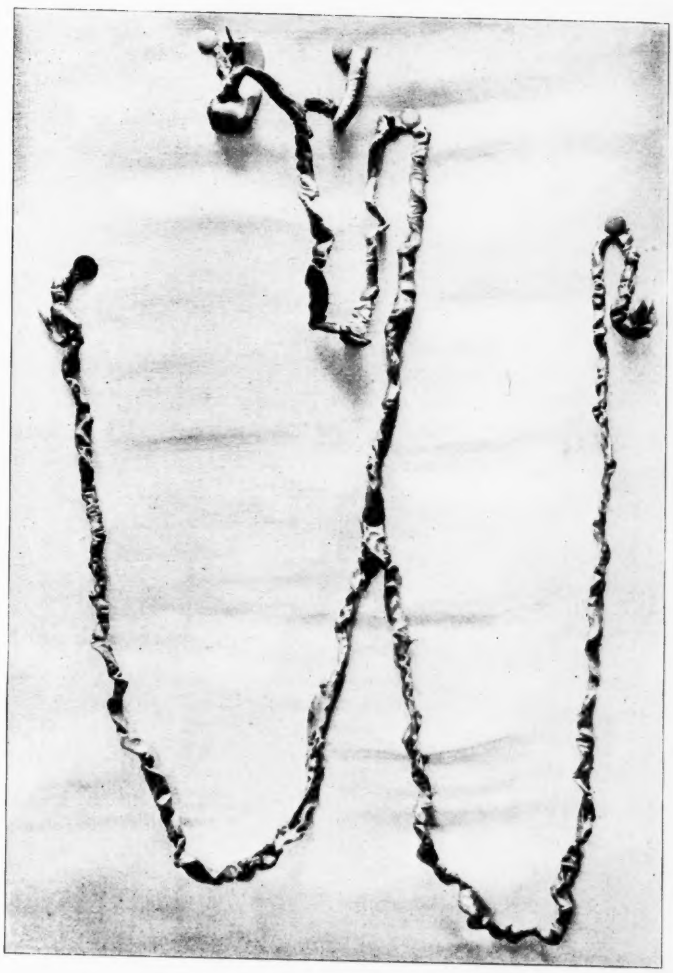


FIG. 3. Diagram to illustrate evolution of single duodenum and jejunum from one yolk-sac common to both embryos. Fore- and hind-guts shaded, mid-gut dotted. The ducts of the pancreas—Wirsung and Santorini—are also seen.

been in actual contact. What I then suppose to have taken place is illustrated in Fig. 2, and granting the original hypothesis—two embryos developed from a single ovum without bilateral segmentation—an easy explanation results as to the lateral fusion of the twins, even to the greater fusion in the second example than the first, and also as to the common epiblastic covering of the fused areas and the

PLATE VI.

PLATE VII.



single jejunal tube. All are easy of explanation on this hypothesis, and difficult, if not actually impossible upon any other.

2. *The explanation of the single duodenal and jejunal tubes and the single liver.* The hypothesis adopted in the preceding paragraph assumes the presence of a single yolk-sac common to both embryos, and Fig. 3 illustrates my conception of the evolution of the single duodenal and jejunal tubes from this common yolk-sac. Both the pyloric ends of the duodenal tube have undoubtedly been developed from the independent fore-guts, whilst the intermediate portion, with the biliary duct and the single jejunum have, in my opinion, been developed from the common yolk-sac or mid-gut. I say "in my opinion" because such an assumption necessitates the liver being a mid-gut development, and the numerous works upon embryology which have been consulted appear to me to leave the question an open one. Keith, in his *Human Embryology and Morphology* states that the fore-gut becomes the pharynx, œsophagus, stomach, and that part of the duodenum situated in front of the opening of the common bile duct, that is to say, he appears to regard the liver as a mid-gut development. With this I entirely agree, inasmuch as in both these cases there is but one common bile duct which opens into the intermediate portion of the single duodenal tube. Thus the liver is proved to be a single structure common to both twins and not two liver buds fused together, and as an additional argument in support of this view it may be stated that each liver has but one Spigelian lobe. For these various reasons I am, therefore, of opinion that these cases prove the liver to be a mid-gut development, and that Keith is perfectly correct in his views upon this point. The hypothesis upon which the lateral fusion was explained suffices, therefore, for the single duodenal and jejunal tubes as well as for the single liver.

3. *The suppression of the gall-bladder in the one case and its presence in the other.* As the gall-bladder is known to be developed normally as a diverticulum from the common hepatic stalk in the second month, it is perfectly easy to understand the suppression of this viscus in the one case and its presence in the other, it is at the same time impossible to offer any theory as to *why* the gall-bladder diverticulum should thus grow out in the one case and not in the other.

4. *The partial fusion of the heart and the peculiar condition of the auricles and ventricles.* From the description which has already been given of the apparently single heart it will be sufficiently obvious that it is in reality a question of the partial fusion of two

originally distinct tubular hearts. As the inferior venæ cavæ unite to form a single structure just before their termination in the functional right auricle, and as there are but two auricles with four auricular appendages, it seems fairly certain that the two originally distinct tubular hearts have fused together in the region of the sinus venosus (see Fig. 4), this is further borne out by the condition of the ventricles. On this assumption it is not very difficult to understand what has taken place.

Under normal conditions the sinus venosus shifts towards the right side of the primitive auricle, and so eventually opens into that part of it which becomes the right auricle of the adult heart, forming

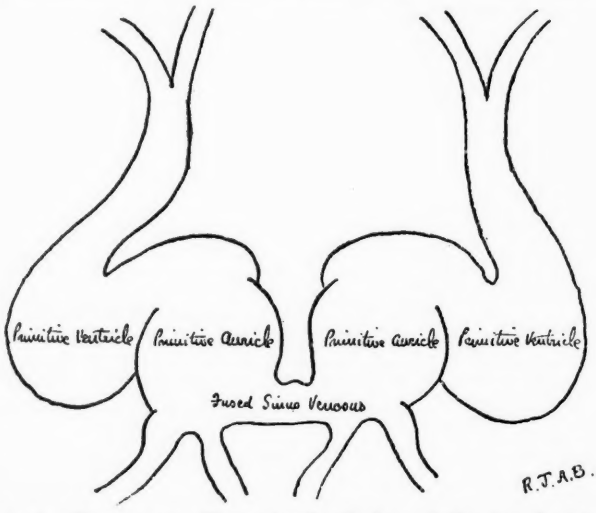


FIG. 4. Diagram to illustrate the fusion of the two hearts in the region of the sinus venosus.

its atrium and the coronary sinus. The primitive auricle sends out an appendix on each side which grows forwards around the bulbus arteriosus, whilst the primitive auricle itself becomes differentiated into a right and a left chamber by the growth of two septa—the septum primum and the septum secundum,—the foramen ovale being nothing more than the interval left between these two auricular septa. In this particular instance the sinus venosi of the two twins have fused together to form a common cavity (Fig. 4), but this fusion has not affected, or perhaps only very slightly, the primitive auricles, as is evidenced by the presence of the four auricular appendages. The primitive auricle of the left twin has been divided in the ordinary way, as is further evidenced by the presence of a well-marked

PLATE VIII.

PLATE IX.

foramen ovale, and its left division has become the functional left auricle common to both twins. The primitive auricle of the right twin has not been divided at all, or to be more accurate only the merest attempt has been made at such division as is shown by the presence of a thin strand, not unlike the moderator band, which is found crossing the cavity of the functional right auricle. This undivided primitive auricle of the right twin has been thrown into free communication with the right auricle of the left twin through the fusion in the region of the sinus venosus. Hence the functional right auricle common to both twins represents what should have

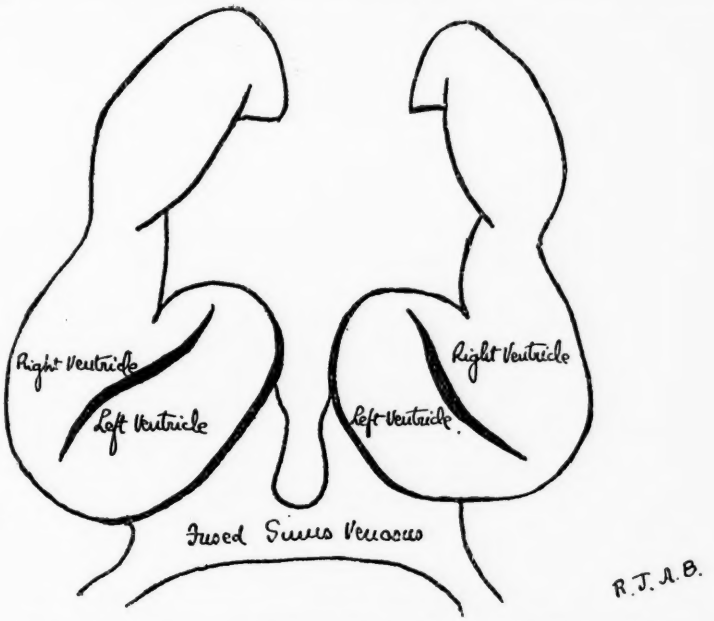


FIG. 5. Diagram to illustrate the development of the ventricles.

become the right and left auricles of the right twin and the right auricle of the left twin. This is still further borne out by the fact that three of the four auricular appendages are connected with this functional right auricle.

The fusion of the tubular heart of each embryo having occurred in the region of the sinus venosus the ventricles have altogether escaped, and hence the ventricles of the two twins are altogether separated, and those of the left twin are almost normal. An acquaintance with the normal V-shaped bend made under ordinary conditions by the ventricular part of the embryonic tubular heart to the right,

and a reference to Fig. 5 will explain the order of the ventricles from right to left as previously described. The communication which exists between the two ventricles of the right twin is explained by the non-development of the pars membranacea septi, and the origin of the aorta and the pulmonary artery from the one ventricle by the partial failure in the division of the aortic bulb and the imperfect separation of the ventricles.

The explanation of all the cardiac abnormalities is therefore referable to, first, a fusion in the region of the sinus venosus, and thereafter to the imperfect separation of the auricles and ventricles

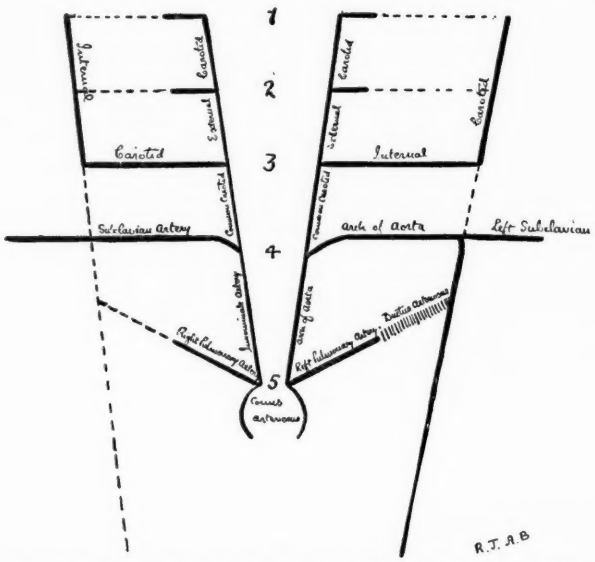


FIG. 6. Diagram to illustrate the normal evolution of the great vessels from the aortic arches. The dotted lines indicate those portions of the arches which disappear.

of the right twin, and it is not without interest to note that it is the right twin which is mainly at fault.

5. *The condition of the great thoracic vessels.* The normal evolution of the aortic arches is so well understood, and the variations to which they may give rise have been so ably worked out by Professors Young and Robinson, that it becomes an easy matter to trace the course of events in the twins of the second case. The normal evolution of the great thoracic and cervical vessels from the aortic arches is, for the sake of clearness, illustrated in Fig. 6.

As regards the vascular abnormalities in the right twin (Case II.)

the probable changes which have occurred and their deviations from the type are shown in Fig. 7. The arch of the aorta has developed from the fourth right aortic arch instead of from the fourth left. Fusion of the ventral roots of the fourth aortic arches has given rise to the stem of origin common to the two carotids, and the left subclavian. All three parts of the right subclavian have grown out from the fourth arch instead of the third part only, as is normally the case. The communication of the ductus arteriosus with the arterial stem common to the two carotids and the left subclavian, is a rather more difficult problem. It is probably due in the first instance to absorp-

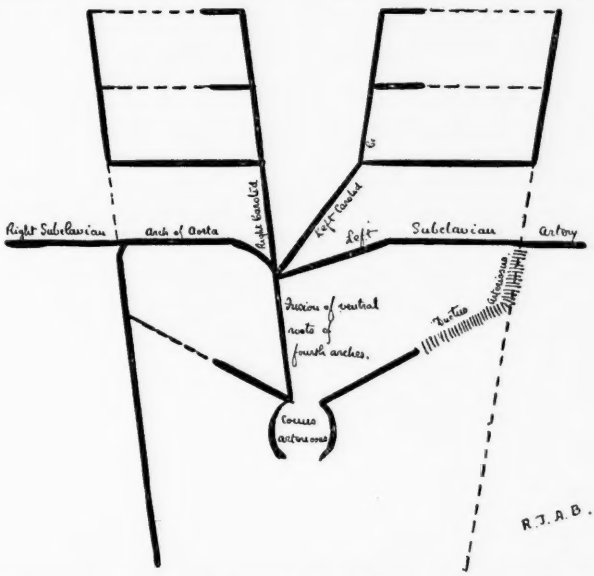


FIG. 7. Diagram to illustrate the evolution of the great vessels in the case of the right twin.

tion of the fourth left aortic arch and the consequent shifting of the ductus arteriosus. If the left subclavian artery has grown out, as it ought to do from the dorsal end of the fourth left aortic arch, then the ductus arteriosus must represent the dorsal end of the fifth left aortic arch plus the dorsal root of the fourth arch, which would, of course, be altogether abnormal. If, on the other hand, the left subclavian artery has grown out from the dorsal end of the fifth arch, the fusion having involved not only the fourth left arch but also its dorsal root, then the ductus arteriosus is exactly where it should be, but the subclavian, as regards its third part, is somewhat abnormally developed. Whichever explanation be adopted it involves a slight

deviation from the type. The chief variations in the great thoracic vessels of the right twin are, therefore, chiefly referable to the fourth left aortic arch, that is to say to the arch which has been concerned with the fused left upper limb of that twin.

As regards the left twin (see Fig. 8) the fourth right aortic arch has been entirely suppressed. The ventral roots of the fourth arches have fused together producing the carotid trunk. The right subclavian has grown out independently from the fourth left arch in consequence of the suppression of its own—the fourth arch. The left subclavian artery has arisen from its correct position, whilst the

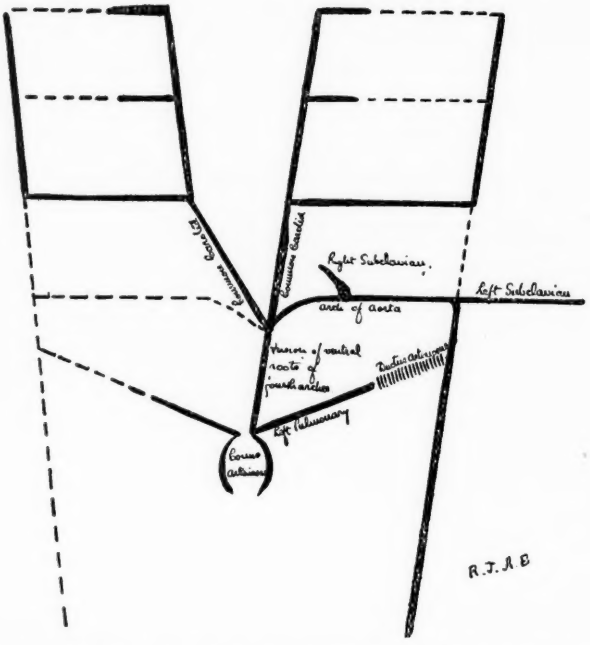


FIG. 8. Diagram to illustrate the evolution of the great vessels in the case of the left twin.

ductus arteriosus is also in its normal position. Here, as in the right twin, the vascular abnormalities are entirely due to the suppression of that particular arch which has been concerned with the fused upper limb. As the left upper limb of the one twin is fused to the right upper limb of the other twin it necessarily follows that the corresponding aortic arches have become suppressed by fusion, and to this may be referred the various vascular abnormalities described.

Whilst embryologists may not agree with all the remarks made in

this attempted explanation of the developmental errors responsible for the variations recorded there seems to be no doubt that the theory upon which this explanation is based is the correct starting point. That twin embryos do develop side by side upon a single ovum is proved by the remarkable case published by Miss Duncan in the *Proceedings of the Anatomical and Anthropological Society of Aberdeen*, 1900—1902, under the title of "The Anatomy of a Double Chick Embryo," and the cases with which this paper deals would further seem to prove that bilateral segmentation of an ovum is unnecessary for the evolution of twins. The condition of the alimentary canals proves conclusively that the twins in each case have possessed but one common yolk sac, bilateral segmentation of a single ovum would result in two-yolk sacs, and hence these cases seem to afford indubitable proof of the truth of the hypothesis adopted herein, namely, double embryos of a single ovum without bilateral segmentation. Further proof of the truth of this theory is afforded by Kamann's "Zwei Fälle von Thoracopagus Tetrabrachius," published in the *Archiv für Gynäkol.*, Bd. lxviii., Ht. 3, where the condition of the alimentary canal in each case was identical with that recorded in the present paper. The present writer's theory, therefore, not only explains the two cases now under discussion, but also suffices for Miss Duncan's case and for those of Kamann. If these several cases and the resulting facts may be accepted as proving the writer's contention, the labour and thought bestowed upon these embryological problems will not have been spent in vain, for two important scientific results follow:—

1. Bilateral segmentation of a single ovum is unnecessary for the production of twins.

2. The liver is a mid-gut development.

Primary Sarcoma of the Vagina in the Adult, with the Notes of a Case.

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H. C. Earl, M.D., F.R.C.P.I., *Pathologist to the Richmond Hospital, Dublin.*

Sarcoma of the vagina is so rare a condition that I feel that I need make no apologies for publishing the present specimen, and for taking advantage of the opportunity to make a few remarks on sarcoma of the vagina in general. So far as I can ascertain, this is the first specimen of the kind that has been recorded in Ireland.

Case. A woman, M.T., aged 55, came to me in August last at Sir Patrick Dun's Gynæcological Dispensary, where I was at the time doing duty for Sir Arthur Macan. She gave the following history:—Age 55, nine children. Last pregnancy eleven years ago. Menstruation ceased five years ago. Two years previous to the present date, she noticed the occurrence of a fairly profuse white discharge, which persisted for about six months, and then became purulent. It has continued up to the present and at times contains traces of blood. The patient considers that she has been getting progressively weaker during the last twelve months. At times she is seized by attacks of dizziness, followed by extreme drowsiness, both of which again pass off completely. Her appetite is bad, and she is getting thinner. Pain is absent, but she complains of weakness of the back. She informs me that she has not lived with her husband for the last twelve months, and for the two years previous to that only very occasionally. The bowels are fairly regular. The urine is passed in normal quantities, but for the last four or five months has been escaping involuntarily at times, due probably to weakness of the sphincter. In appearance the patient is a tall, thin woman, very sallow, and looking rather more than her age.

On separating the labia, the mucous membrane at the vulvo-vaginal junction is seen to be completely changed in character, and to present instead of its normal characteristics the appearance shown in Plate I. There is an oval area of what is at first sight apparently congested and hypertrophied mucous membrane. This area is defined below from the skin covering the labia minora and surrounding parts by two sharply cut and sinuous edges, which start in front just behind the clitoris and run backwards, one at each side, along the inner surface of the labia minora to meet at the anterior edge of the perinæum. The surface of the included area lies below the level of the surrounding parts, but as it is covered over with irregular bosses or tubercles, this is only noticeable in certain places, notably on the posterior vaginal wall. These bosses furnish the

most characteristic part of the growth. Some are rounded tumuli, while others are blunt topped ridges. They are not unlike the sub-amniotic bosses which are found in cases of decidual endometritis, but are widely different in causation.

Anteriorly, a curious flap is present beneath the orifice of the urethra; its position and form are clearly shown in the drawing. When the patient first presented herself at the dispensary it was very marked, but while she was under treatment it became smaller. At the time of operation it was only half its former size, and has become still further shrunken in the specimen. It was probably due to a chronic inflammatory process which subsided under treatment.

On separating the vaginal walls with the finger the extent of their involvement can be seen. Anteriorly, the growth is limited in an upward direction by the flap already alluded to. Laterally, it extends upwards on the right side about an inch and a half, and on the left side about an inch. Posteriorly, its outline is curious, and appears to take almost the exact course of a recent perinæal laceration. The limiting edge starts at the left side of the junction of the posterior and lateral vaginal walls about half an inch above the vulvo-vaginal junction, runs straight upwards to a point nearly two inches above the perinæum, and then comes straight down again so as to form a very sharp-angled inverted V. This brings it to a point on the median raphé of the posterior wall nearly an inch above the perinæum from which it again runs upwards to form a second, though much shallower, inverted V on the right side of the median line. From here it runs across the right lateral wall, as has been described about an inch and a half above the vaginal orifice. The posterior edge is not only sharply cut but undermined, and I think that there can be but little doubt that its course has been determined by the presence of an old perinæal laceration. The surface of the growth is covered by a purulent discharge. The entire area is firmer in consistence than the surrounding parts, into which it imperceptibly passes. The growth does not penetrate deeply, but is apparently confined to the vaginal wall, and the adjacent tissue.

The vaginal walls above the growth are markedly inflammed, and here and there are small prominences resembling those found in granular vaginitis and probably similar to them in origin. The mucous membrane of the vaginal portion of the cervix is also deeply congested. It may also be noted that the passage of the speculum caused slight hæmorrhage from the narrowed vaginal orifice, but did not give rise to any pain. Indeed the parts were curiously insensitive.

As the diagnosis of the case was, to say the least, obscure, I endeavoured for the next fortnight to bring the vagina to a more aseptic condition by the use of vaginal douches, insufflations of iodoform, and the tamponading of the vagina with plugs soaked in

ichthyol and glycerine. This reduced the amount of purulent discharge and eventually caused a shrinkage of the small anterior flap to which I have alluded, but, as might be expected, produced no effect on the remainder of the growth. Accordingly, I removed one of the small bosses at the junction of the posterior and lateral wall, for examination. The removal caused no pain, but a little persistent hæmorrhage, which was stopped by the application of adrenalin. The site formerly occupied by the removed portion can be seen on the specimen, as there was no attempt at repair. Dr. Moorhead, who was then Assistant Physician to the Hospital, very kindly cut several sections of the removed portion for me, and having examined it expressed the opinion that it was either sarcomatous in nature or a mass of chronic inflammatory tissue. The sections were then submitted to two pathologists in the persons of Dr. Earl and Professor O'Sullivan. Both gentlemen declined to commit themselves absolutely without examining another piece of growth; both considered that the growth presented many points of resemblance to a sarcoma; but while one considered that it probably was sarcomatous, the other considered that it probably was not sarcomatous, but a chronic inflammatory process.

By this time the patient had been under treatment regularly twice a week for a period of three or four weeks, without any benefit save a diminution in the amount of purulent discharge, and a corresponding alleviation of her symptoms. On the other hand, it appeared to me that when the growth was grasped between the fingers and thumb, its base had become slightly more infiltrated. Accordingly, I decided to remove it.

Operation. The removal of the growth necessitated the removal at the same time of at least the lower third of the vagina, and I was at first rather doubtful as to whether the accompanying hæmorrhage might not render the operation difficult. However, this was not so, and the actual operation was comparatively easy. I commenced by injecting into the base of the tumour, at some half-dozen different points, a few minims of a 1 in 5,000 solution of adrenalin, and to this was probably due the fact that the operation was comparatively bloodless. The incisions were commenced in front, at the base of the clitoris anterior to the urethral orifice, and deliminated the anterior quarter of the growth. The urethra was then dissected out, and its terminal portion removed. The incisions were then carried backwards so as to completely surround the vagina, and partly with the scissors and partly by separation with the fingers, the lower third of the vagina was completely isolated from the surrounding parts. As

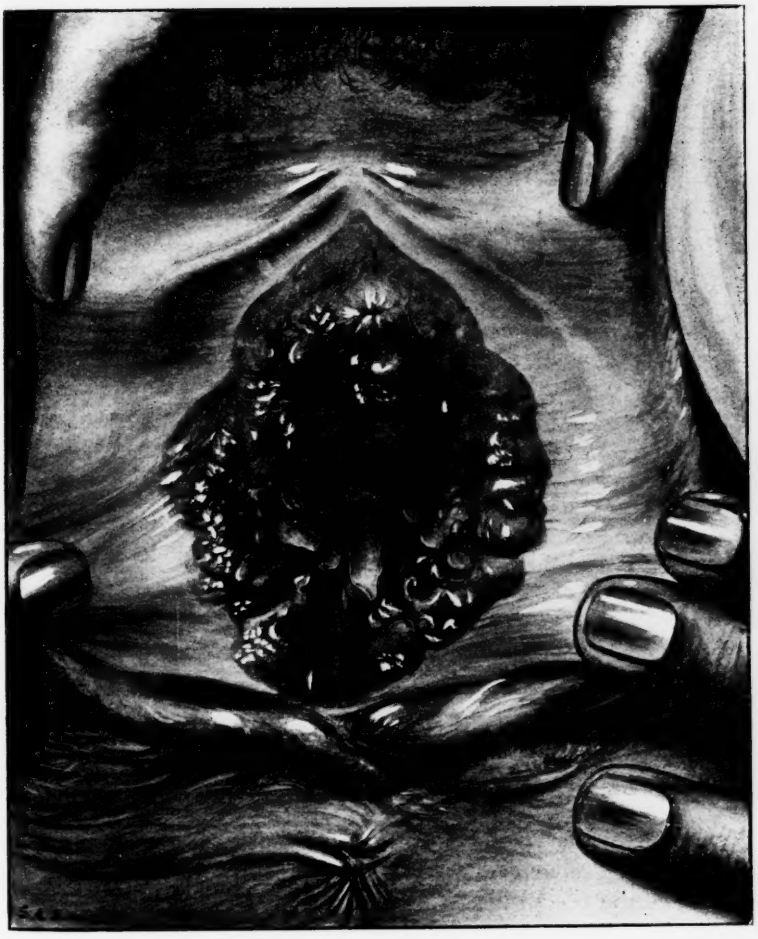

PLATE I.—Sarcoma of the vagina seen from below.

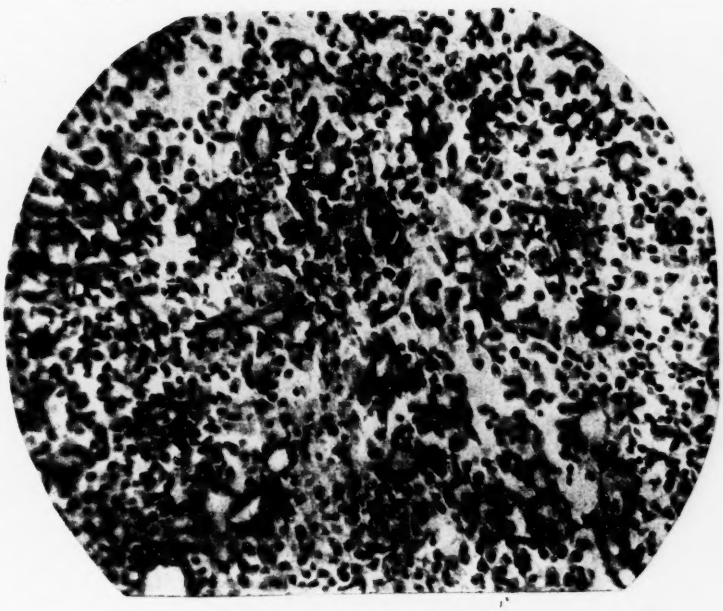

PLATE II.—Micro-photograph of section of sarcoma shown in Plate I. (×300). (Wigham).

soon as this separation had extended well above the growth, the vaginal wall was divided circularly, and the lower portion removed as a complete ring.

Anteriorly, the cut end of the urethra was then sutured to the cut edges of the inner surfaces of the labia minora, and posteriorly and laterally, the divided vaginal wall was easily drawn down and sutured to the perinæum and lateral cut edges of the skin. There was no difficulty in drawing down the wall save at one point on the right side, where the growth had extended outwards and upwards more deeply than elsewhere, and here, in consequence, there was some tension on the sutures. The hæmorrhage during the operation was very slight and only a few small vessels had to be ligated. Finally, the vagina was plugged with iodoform gauze and a firm pad applied externally with a T-bandage.

Convalescence was uneventful, and I removed the sutures on the eighth day. Union was satisfactory all round save at the point on the right side where there had been tension on the sutures. Here the latter had cut through and the vaginal wall had retracted upwards, leaving a ugly gaping cavity. This, however, rapidly granulated up, and the patient left the hospital on October 3rd, three weeks after the operation.

After history. The patient came back to see me on November 9th. She stated that her general health was extremely good, that her appetite had returned, and that she was a pound and a half heavier than when she had left the hospital, a result that, at any rate, shows that she had lost no weight. The cicatrix caused no discomfort, but the occasional urinary incontinence of which she had complained prior to the operation was still present. It could, however, be prevented by emptying the bladder at intervals of a couple of hours, and did not trouble her at all at night.

On examination, the junction of vaginal mucous membrane and skin was complete all round, save at the urethral orifice, and at the point where the sutures had cut out and where there had been the greatest difficulty in getting completely outside the growth. The urethral orifice was situated in the middle of a small, triangular area, which appeared to be formed of granulation tissue, over which the skin had not spread, while on the right side there was a small linear patch of what also appeared to be granulation tissue, from which sprang two delicate leaf-like flaps, the size of a small shamrock leaf. On the probability of these being granulations, I burnt them off with nitric acid.

I saw the patient for the last time on January 21st of this year;

the wound was completely healed, and all trace of granulation of tissue had disappeared.

Report by Dr. Earl on the removed growth:—

"The tumour is an example of infiltrating sarcoma, the rarer of the two varieties met with in the vagina. The new growth forms a layer on the surface which reaches to the vaginal epithelium and invades it. There is some ulceration, very superficial, and the ulcerated surface is covered in part by a fibrinous membrane. The new growth extends between the bundles of the dense fibrous tissue which forms the mucous membrane of the vagina as far as the muscular coat, which it slightly invades. In some of the sections a tubular gland, lined by columnar epithelium, occurs. It lies in the deep part of the mucous membrane and partly in the muscular coat, and it is invaded by the growth. The cells which form the new growth are small, and most of them are round, but some few are oval or short spindle cells. They have a nucleus which stains darkly in hæmatoxylin and a very distinct layer of protoplasm. There are numerous thin-walled vessels in the growth" (*v.* Plate II.).

I do not propose to enter into a detailed account of sarcoma of the vagina. Two very admirable articles on this rare condition are to be found already in British Medical literature. In the *Reports* of St. Bartholomew's Hospital, for 1891, there is an article by Dr. W. J. Gow, in which are the notes of what appears to be the only British case then recorded of sarcoma vaginæ in the adult, and a very complete account of all the other cases he was able at the time to collect. In the *Journal of Obstetrics and Gynæcology of the British Empire* for April, 1902, there is an article by Mr. Roger Williams, in which he refers to several previously reported cases, and amongst these appear another British case recorded by Morris. Williams' article is, however, unfortunately and unnecessarily complicated by the inclusion of cases due apparently to the engrafting of tumours of chorionic origin on the vaginal wall. There is also available an interesting paper by Otto Seitz, published in von Volkmann's *Sammlung Klinischer Vorträge* No. 280, on primary vaginal sarcoma, in which Seitz deals with the cases recorded up to 1900, and adds a case of his own. It may be of interest if I endeavour to bring Seitz's list up to date.

So far as I can ascertain 39 cases of primary vaginal sarcoma in the adult have been so far recorded. In Table 1, I have given shortly the general particulars of each case; Table 2 shows the histological characters of 38 of these cases; Table 3 the relation of the tumour to the vaginal wall; and Table 4 the different ages at which sarcoma vaginæ occurs.

TABLE I.

Particulars of Recorded Cases—39 Cases

Case	Age	Situation of Growth	Histological Structure	Result	Recorded by	Reference
1	58	All round lower part of vagina	Round-celled	Death result of operation	Spiegelberg	"Archiv. v. Gynäk.," Bd. 4, 1872. S. 348.
2	—	Lower part anterior vaginal wall	Spindle-celled	No recurrence after 4 years	Idem	Ibid.
3	15	Lower part anterior vaginal wall	do.	Rapid recurrence	Kaschewarowa-Rudnewa	"Virchow's Archiv.," 1872, Bd. 54. S. 63.
4	—	Posterior vaginal wall, upper part	do.	Not mentioned	Idem	Ibid.
5	38	Lower part anterior vaginal wall	do.	Death after operation	Meadows	"Trans. Obs. Soc.," Lond., Vol. X.
6	32	Lower part anterior and posterior vaginal wall	Angio-sarcoma (probable deciduoma mal.)	Rapid recurrence	Steinthal	"Virch. Archiv.," Bd. 111.
7	19	Lower part posterior vaginal wall	Spindle-celled	do.	Simmons	"Edin. Obstet. Trans.," Vol. X.
8	23	Lower part anterior vaginal wall	Angio-sarcoma	Rapid growth and death	Kalustow	"Archiv. f. Gynäkol.," Bd. 40, 1891. S. 499.
9	30	Lower part left and posterior vaginal wall	Round-celled	Recurrence	Fraenkel	"Deutsch. Zeitsch. f. Prakt. Med.," [1875. Nr. 10.
10	25	Lower part posterior wall	do.	do.	Bajardi	"Annal. d'Obstét.," Vol. II., 1880.
11	39	Lower part anterior wall	do.	No recurrence after 10 mths.	Menzel	"Centrabl. f. Gynäk." 1885.
12	38	Lower part anterior wall	Spindle-celled	Recurrence	Herzfeld	"Allgem. Wein. Med. Zeitung," 1889.
13	55	Lower part posterior wall	Round-celled	do.	Langton	"St. Barthol. Hos. Reps.," 1891, p. 97.
14	15—20	Anterior wall	Spindle-celled	do.	Wirtz	"Inaug. Diss. Bonn.," 1891.
15	82	Posterior wall	do.	do.	Senn	"Amer. Jnl. Obs.," Apr., 1895, p. 565.
16	31—40	Anterior wall	do.	No recurrence after 11 years	Rubeska	"Centralb. f. Gynäk." 1896. S. 113.
17	—	—	Spindle-celled (Endothelioma)	Recurrence	Amann	"Kurzgefasstes Lehrbuch d. Gynäk., Mikrosk., Diagnostik."
18	50	Right lateral wall	Spindle-celled (Endothelioma)	do.	Jung	"Monats. f. Geb. u. Gynäk.," IX., 1899. S. 373.
19	51—60	Anterior wall	Round-celled	do.	Munz	—
20	52	Right lateral wall	—	do.	Jung	*v. supra.*

TABLE I.—*Continued.*

Case	Age	Situation of Growth	Histological Structure	Result	Recorded by	Reference
21	41—50	Posterior wall	Giant-celled	Recurrence	v. Rosthorn	"Zur Kenntnis der primären Sarkome der Port. Vag.," Wiener Klinisch., Wochen., 1889.
22	—	Anterior wall	Melanotic, spindle-celled	do.	Parona	"Ann. Univ. Med.-Chir.," Milano, 1887, p. 241.
23	21—30	—	Myxo-sarcoma	No recurrence	Gatti	"Giornale della R Acad. di. Med.," Torino, 1892.
24	—	—	do.	—	Ferrari	"Sala Chir. . . . d. Osp. Magg. di Bergamo.," 1891, 179.
25	15—20	Anterior wall	Round and spindle-celled	Recurrence	Ahfeld	
26	41	Posterior wall	Spindle-celled (Endothelioma)	Result unknown	Seitz	"Samml. Klin. Vorträge," No. 280, Leipzig, 1900.
27	20	Right lateral wall	Spindle and round-celled	No recurrence after 2½ years	Morris	"Practitioner," Vol. II., 1898, p. 593
28	49	Anterior wall	Melanotic sarcoma	Recurrence	Horn	"Monats. f. Geburts u. Gynäk.," Nov., 1896, Vol. IV., p. 409.
29	—	—	Teleangiectatic	do.	Alglave	"Bull. Soc. Anat. de Paris.," Vol. XII., 1891, p. 657.
30	—	Posterior wall	Spindle-celled	do.	Morestin	"Bull. Soc. Anat. de Paris.," 1898, p. 431.
31	24	Anterior and lateral walls	Angio-sarcoma	Death from hæmorrhage	Schwartz	"Contes Rendus Soc. d'Obstét., etc.," de Paris, 1901.
32	60	Posterior wall	Round and spindle-celled	Died	Savage	"Brit. Md. Jnl." Vol. I., 1899, p. 1281.
33	44	Anterior wall	Spindle-celled	Recurrence	MacNaughton-Jones	"The Lancet," Vol. I., 1902, p. 439.
34	56	Left side	Endothelioma	do.	Klien's	"Arch. f. Gynäk.," Bd. 46, 1894. S. 360.
35	14	—	do.	do.	Gebhard	"Pathologische Anat. der Sexualorgane," Leipzig, 1899.
36	55	Posterior wall	do.	do.	Franke	"Mikroskopische Untersuchingen über maligne Tumoren, etc.," Inaug. Diss., Berlin, 1898.
37	—	Posterior wall	Round-celled	do.	Gervis	"Trans. Obstet. Soc. of London," Vol. XXVIII., p. 82.
38	16	Anterior wall	do.	No recurrence after 6 years	Handfield-Jones	Ibid.
39	55	All round vagina	do.	No recurrence after 5 mths.	Jellett	—

TABLE II.

Histological character of 38 cases.

Spindle-celled	17 cases	(of these at least six were probably endotheliomata).
Round-celled	9 „	
Angio-sarcoma	4 „	(of these one is probbly more correctly considered to be a deciduoma malignum).
Round- and spindle-celled...	3 „	
Melanotic sarcoma	2 „	
Myxo-sarcoma	2 „	
Giant-celled	1 „	

TABLE III.

The relation of the tumour to the vaginal wall in 34 cases.

On anterior wall	15 cases.
On posterior wall	12 „
On lateral wall	4 „
All round vagina	2 „
On anterior and posterior walls	1 „

TABLE IV.

Age of patients in 31 cases.

20 and below	7 cases.
21—30	5 „
31—40	5 „
41—50	5 „
51—60	8 „
Above 60	1

We thus see that amongst 39 cases of vaginal sarcoma there is a much larger proportion of the spindle-celled than of the other varieties, but at least six of these are in all probability derived from the endothelium of the blood-vessels or lymphatics, and so consequently should rather be termed endothelioma than sarcoma. Four cases are described as angio-sarcoma, but of these at least one would, I think, in virtue of its history, be more correctly termed a deciduoma malignum or chorio-epithelioma. It was described by

Steinthal and occurred in a multipara, aged 32, four months after she had been delivered of a hydatidiform mole. On the lower part of the anterior vaginal wall, there was a swelling the size of a walnut with an ulcerated patch on its surface, and on the posterior wall, opposite the tumour on the anterior wall, was a swelling the size of a hen's egg. The uterus was only slightly enlarged. The growth spread rapidly and filled the vagina. The patient died soon after, but there was no *post-mortem* examination. Even assuming that the uterus was unaffected, there is no difficulty, in view of what is now known of the pathology of deciduoma malignum, in regarding the tumour in this case as the result of the vaginal implantation of actively proliferating fœtal ectoblast. I notice that Roger Williams also considers such a view of Steinthal's case probable. I have, however, allowed the case to remain in the list of sarcomata as it was previously placed there by Gow and Seitz.

Vaginal sarcoma appears to arise with slightly greater frequency from the anterior than from the posterior wall, but so far as I can find there is only one case described in which there is the same distribution of the growth all round the vagina that there is in my specimen. This case was one of two recorded by Spiegelberg in a patient aged 58. The menopause had occurred at 40, and a year prior to the time at which she came under treatment she noticed a gradually increasing bleeding from the vagina. The patient was pale but well nourished. Close to the vaginal orifice, and involving the lower portion of the vagina, was an irregular firm infiltration of the vaginal mucous membrane, elevated above the level of the healthy tissue, with hard everted edges and a granulating surface, which bled on being touched. In the middle of the posterior wall, was an isolated nodule the size of a pea. The uterus was atrophied and intact, and there was no involvement of the pelvic organs. The inguinal glands were not swollen and the abdominal and thoracic viscera appeared to be healthy. The growth was removed, but the patient died a week later of septic infection. Microscopical examination showed that the growth was a round-celled sarcoma.

The age of the patients varied from 14 in the case of endothelioma recorded by Gebhardt, to 82 in Senn's case of spindle-celled sarcoma. Seven cases occurred prior to 21, 22 cases between 21 and 60, and one case after 60. The disease occurred with equal frequency during the three decades between 20 and 50. Between 50 and 60, the largest number of cases occurred. I have not been able to ascertain the relative frequency of the two main types of vaginal sarcoma—the infiltrating type and the circumscribed type. There is no doubt,

however, that the infiltrating type is very much the rarer of the two. Indeed, in addition to Spiegelberg's first case, the description of which I have quoted, and to my own case, I cannot find a distinct statement that any of the others were of this type. It is, however, probable that some of those described as angio-sarcoma may have answered to this description.

The prognosis of vaginal sarcoma is, judging from the history of the cases I have collected, distinctly bad. Seitz states that only three cases have been recorded in which the disease was removed and did not recur. These are Spiegelberg's second case in which there was no recurrence after four years, Gatti's case in which there was no recurrence after several years, and Rubeska's case in which there was no recurrence after eleven years. To this number may, I think, also be added Morris's case in which there was no recurrence after two and a half years, and Handfield-Jones's case in which there was no recurrence after six years. Menzel's case, in which there was no recurrence after ten months, cannot be added to the list of successful cases as the period for which it was watched is not sufficiently long. For the same reason, my own case cannot as yet be included, as only five months have elapsed since the operation. I hope on a future occasion, as soon as a definite conclusion can be formed as to the result of this case, to complete these notes.

In conclusion, I must express my indebtedness to Dr. H. C. Earl for his report on the specimen and for his kindness in looking into the bibliography of the subject. I am also indebted to Mr. Roger Williams and to Dr. Macnaughton-Jones for additional references, to Dr. Arthur Ball for some very excellent photographs from which Plate I. was drawn, and to Dr. Wigham for the micro-photograph shown in Plate II.

The Prevention of Septic Infection during Labour and the Puerperium.*

By Robert Jardine, M.D., F.R.S.E., etc., *Professor of Midwifery in St. Mungo's College; Physician to the Glasgow Maternity Hospital; Honorary President of the St. Mungo's College Medical Society.*

In thinking over a subject to address you upon to-day I came to the conclusion that I would speak to you on the subject which I teach. In the first place, it is, or ought to be, the one on which I am best qualified to speak, and in the second place its importance to you in your future work cannot be over estimated. The great majority of you no doubt will be doing general practice, and your success will largely depend upon the results of your midwifery work. I might discuss the advances which have been made in obstetric work within recent years, but I shall not take up so wide a subject, but confine my remarks to the prevention of septic infection during labour and the puerperium. This subject is a peculiarly fitting one for discussion in what may appropriately be called the birthplace of antiseptics.

I need hardly remind you that it was within the walls of the Glasgow Royal Infirmary that Lister began to elaborate the antiseptic system which was destined to revolutionise surgical practice. The surgery which you see practised to-day in the infirmary wards is a very different surgery from that of the pre-antiseptic days. Sepsis is practically abolished, and in most cases the surgeon operates with the full expectation that healing will occur by first intention without the formation of a single drop of pus. This is, of course, brought about by thorough asepsis. Aseptic methods have been evolved from the antiseptic one, and are the logical outcome of it. As the antiseptic era had dawned a considerable number of years before my student days I have never had any personal experience of pre-antiseptic surgery, so, except from hearsay and reading, I know nothing about the terrible conditions which were quite common in the wards in those days; but I am thankful, and I am sure you will all be the same, that such terrible scourges as hospital gangrene, etc., are things of the past.

Now, let us see how matters stand in reference to midwifery work. It is a fact, and one which, I think, is not sufficiently recognised,

* Delivered to St. Mungo's College Medical Society, January 23rd, 1904.

that aseptic methods were applied to midwifery work before Lister used antiseptics in surgery. In 1847, the same year in which Simpson introduced chloroform, a Hungarian named Semmelweiss made one of the most important discoveries which has ever been made in obstetrics, viz., the true nature of puerperal fever. He was assistant in the Obstetric Clinique in Vienna. In one-half of the clinique the women were attended by midwives, and in the other half by students. He noticed that the death-rate among the women attended by the students was double that among those attended by the midwives. Just at that time a colleague of his pricked his finger while doing a *post-mortem* examination, and died of blood poisoning. Semmelweiss was struck with the similarity of the symptoms and course of blood poisoning to those of puerperal fever, and he came to the conclusion that the latter was merely blood poisoning in a puerperal woman and that the infection took place through the genital canal during labour or the puerperium. This explained the higher death-rate among the patients attended by students, who were working in the dissecting and *post-mortem* rooms. To test the truth of his theory he made the students disinfect their hands with chlorine water and chloride of lime solution, and the death-rate among their patients soon fell below that in the other clinique. This great discovery was not enthusiastically received by the leaders of the profession. They did not relish being told they were conveying infection on their hands to their patients. It was less troublesome to the conscience to ascribe puerperal fever to a dispensation of providence. Semmelweiss's reward was that he was driven from Vienna, and his life embittered until he became insane, and finally died, by the irony of fate, from blood-poisoning. Had he been a man of strong personality probably his discovery would have been forced upon the profession at once, and many lives have been saved. Even at the present day there are men who do not seem yet to have grasped the significance of Semmelweiss's discovery, judging from the way they conduct labours without properly cleansing their hands.

When antiseptics came into general use in surgery they were also used in obstetrics, and the same may be said of aseptic methods. In pre-antiseptic days Maternity Hospitals were hot beds of infection. Outbreaks of puerperal fever were so common that the advisability of doing away with such hospitals was very seriously considered. The buildings were repeatedly pulled down and rebuilt, only to find that in the new buildings, sooner or later, the same outbreaks occurred. This condition of matters went on, in a modified form,

long after antiseptics had practically banished sepsis from surgical wards. In our own Hospital there was a slight outbreak of puerperal fever in 1896. It was ascribed to overcrowding, but I was able to trace the source of infection when I was appointed full physician at the end of that year. The napkins in use were found to contain staphylococci. They were supposed to have been boiled, but, nevertheless, they contained septic germs. I at once asked for a steam sterilizer, and since then everything coming directly in contact with the patient's vulva is first sterilized, and, as you know, we practice the strictest asepsis during delivery and the puerperium. The result has been most satisfactory. We are now treating nearly twice as many patients in the wards as was done prior to 1896, and I am quite sure our temperature charts will compare favourably with those of any of the surgical wards. I do not mean to say we never see septic cases, as unfortunately we find a number of our cases are septic when admitted, but we have had no outbreaks of sepsis in seven years. The same may be said of all well conducted Maternity Hospitals. The problem of the prevention of sepsis has, therefore been solved in the Maternity Hospitals. When we turn to consider the question of private obstetric work we are met with the astounding fact that, according to the Registrar's General reports, deaths from puerperal fever are more frequent than they were in pre-antiseptic days. In his presidential address to the Edinburgh Obstetrical Society Milne Murray gave the following tables:—

TABLE I.*

MORTALITY FROM PUERPERAL FEVER IN ENGLAND AND WALES.

		Mean deaths per 1,000.
1847–1856	... Early anæsthesia; no antiseptics	... 1·8
1875–1884	... Anæsthesia general; early antiseptics	... 2·28
1886–1895	... Anæsthesia general; antiseptics general	... 2·46

TABLE II.

CHILDBED MORTALITY IN SCOTLAND.

	Accidents in childbed.	Puerperal fever.	Total.
1897	331	205	536
1898	351	227	578

* Trans. Edinb. Obstet. Soc. Vol. xxvi., p. 20.

These figures are really appalling. Milne Murray says:—"I feel sure that an explanation of much of the increase of maternal mortality from 1847 onwards will be found in, first, *the misuse of anæsthesia,* and second, *in the ridiculous parody which, in many practitioners' hands, stands for the use of antiseptics.* In a word, the use which has been made by many of two of the greatest blessings of humanity has converted them into little else than a curse. Before the days of anæsthesia, interference was limited, and obstetric operations were at a minimum, because interference of all kinds increased the conscious suffering of the patient. . . . When anæsthesia became possible and interference became more frequent, because it involved no additional suffering, operations were undertaken when really unnecessary, on the demand of the patient, or for the convenience of the practitioner; and so complications arose and the dangers of labour increased. But the knowledge that this interference involved risks must have served as a salutary check to some extent. Then came the antiseptic era. Here was now the panacea for all the dangers of childbed. All that was necessary was to dip the instruments for a few minutes in a carbolic lotion, and the hands in one of half the strength for half the time, and all danger was at an end. The forceps was passed through an undilated os; if it tore slightly no matter, the antiseptic made that quite safe. Turning was now a matter of mere manipulative skill—a clean hand in the uterus could now do no harm. This is no mere caricature; and if it represents the methods of any reasonable proportion of practitioners what wonder the cup was so often full of death."

These are very strong words of Milne Murray's, but I have no hesitation in endorsing everyone of them. The proper use of antiseptics has completely revolutionized the condition of matters in our Maternity Hospitals, and it can do, and has done, the same in the private work of many obstetricians. If obstetricians will conduct their labours with as much care as surgeons employ in their operations, as good results will be got, and sepsis will be rare. Not only will the mortality be reduced, but what is also of extreme importance, the morbidity will be greatly lessened. Sepsis does not always kill, but in many cases—one might almost say in every case—some morbid condition is sure to be left behind from which the patient will suffer, more or less, during the remainder of her life.

Labour may be said to be a physiological process, but it is dangerously near the pathological and very little will upset the balance and convert a simple process into an exceedingly dangerous one. This is especially true among civilized races, and the farther

we get from the state of nature the greater is the risk to the patient. At the onset of labour, in ordinary cases, the contents of the uterus are aseptic. In a few rare cases this is not true, but these cases are so exceedingly rare that we may disregard them. The same may be said about the vagina. It has been amply proved that in the vast majority of cases pyogenic organisms are not found in the vagina. There are many bacteria which are, however, non-pathogenic, and, as a matter of fact, are protective. They are most efficient scavengers, and have the power of destroying virulent organisms like staphylococci. In exceptional cases, such as gonorrhœa, the vagina is septic, but such cases are rare. While the internal passages are aseptic, the external genitals are extremely septic, and this is a source of great danger which is too often overlooked. A woman may be perfectly cleanly in her habits, but in spite of that her vulva will be septic, and if this is the case with a cleanly woman, what must be the condition of many who have no regard for cleanliness. If the external genitals are septic then manifestly we should endeavour to make them as aseptic as possible, and this can only be done by thoroughly cleansing them with an antiseptic.

During labour the aseptic contents of the uterus tend to keep the canal clean during their passage. The liquor amnii, which is an aseptic saline fluid, flushes the canal well from above downwards, then, when the child is being born, it cleanses the canal by brushing it out, and the gush of blood which follows again washes it from above downwards, and finally the placenta and membranes complete the cleansing. We thus see that during labour nature helps to keep the passages aseptic, and at the end of an ordinary labour, where there has been no examination or interference, the internal passages ought to be quite aseptic. If this be true, as it undoubtedly is, our endeavours should be to assist nature and interfere with her work as little as possible.

In the first place the sanitary surroundings of the patient should be good. This is of as great importance in a confinement case as in a surgical operation, and should, therefore, be seen to. The patient's bed and clothing should also be clean. Her external genitals are septic, and they should be rendered as clean as possible. The internal passages are aseptic, so further cleansing of them can do no good, and as a matter of fact will do harm, as it will remove the protective organisms. The risk commences when we make an internal examination or pass any instrument into the aseptic canal. If we could conduct our labours without introducing anything into the canal then there would be little risk of infection, but, unfortunately,

examinations and manipulations are often necessary. Much can be done by external palpation, but it is impossible to entirely do away with vaginal examinations, even in normal labours, and in assisted labours internal manipulations are absolutely necessary. Our manipulations should, therefore, be as limited as possible, and should be done with the utmost care as regards asepsis. Before making a vaginal examination the hands and forearms should be as carefully sterilized as for an ordinary surgical operation. If this precaution is taken, and the external genitals of the patient have been properly cleansed, the risk of conveying septic material into the vagina is practically *nil*. The external genitals of the patient must be exposed to view and the labia should be separated with the finger of the other hand. The examining fingers must not be allowed to touch anything before being introduced. In using instruments the same care should be exercised, and the instruments should be thoroughly sterilized. It is impossible to do aseptic work under the bedclothes, so a certain amount of exposure is necessary, and you will find no difficulty in this, if you explain that it is necessary. No gynæcologist would attempt to do an operation under the bedclothes, and why should an obstetrician be expected to do this. The thing is absurd. Limit your vaginal examinations as much as possible, and carry them out under the strictest aseptic precautions.

Another important point to remember is not to allow a labour to become prolonged until the woman begins to show signs of exhaustion. I am not an advocate of rushing matters, but I firmly believe one should not wait until the woman's pulse is beginning to flag and her temperature to rise. Twenty-four hours is usually taken as the extreme limit of a normal labour, but in many cases this is far too long. In labours lasting over 24 hours the mortality is four times greater than in those under 24 hours, while in those lasting over 30 hours it is 12 times greater. A prolonged labour is, therefore, a dangerous one not only from the exhaustion probably killing the patient, but because of the greater liability of the patient to sepsis from the lowered vitality of the tissues. Therefore, as soon as you find that natural efforts are not sufficient to end the labour within a reasonable time, interfere early and do not wait until the natural efforts have completely failed. It is far better to render a little assistance early than to do the whole delivery later when nature has absolutely failed. If there are any lacerations of the canal they must be carefully stitched.

Another point of extreme importance is to see that the uterus is completely emptied, so the third stage of labour must be conducted

with the utmost care. If a portion of the placenta or membranes is left behind septic infection is almost sure to occur. To all intents and purposes these are dead tissues, and they should be removed or they will become suitable fields for the growth of septic organisms. In a surgical operation you know how careful the surgeon is to remove all dead tissue from the seat of operation, and why should an obstetrician not do the same. It is all very well to say that the uterus will expel anything retained in it, and so it may, but before it has done so the probability is that septic invasion will have occurred and the whole system of the woman will have been poisoned by the absorption of ptomaines or organisms to an extent which will endanger her life.

When delivery is completed the external parts should be thoroughly cleansed and an aseptic napkin be applied to the vulva. This is an important part of the operation and should not be delegated to an attendant unless that attendant is a thoroughly trained nurse, and even then it is safer to see to it yourself. During the puerperium the napkins should be changed as often as they become soaked, and the parts should be kept as clean as possible with an antiseptic wash. When the attendant is not a qualified nurse you should instruct her to thoroughly wash her hands before she touches the patient, and insist on her using clean rags or swabs of gauze tissue. A non-poisonous antiseptic such as Condy's fluid or Sanitas should be used. Forbid the use of the domestic sponge or piece of flannel.

You will notice that I have said nothing about douching. At one time douching after labour and during the puerperium was commonly practised. If the work is done aseptically it is unnecessary and will probably do more harm than good. In ordinary cases it should not be used, but in cases of post-partum hæmorrhage it should be used to check the hæmorrhage, and also after severe operations, and where the uterine contents were septic. During the puerperium douching is not necessary unless septic absorption has commenced. The best form of douche is a continuous one with a glass nozzle which should be sterilized. A Higginson's syringe should never be used, especially if it has been employed previously for an enema. Sterilized water or normal saline solution makes a good douche, but antiseptic ones are usually employed. Corrosive sublimate has been condemned as dangerous, and if you use it be sure to end up with sterilized water to wash out the albuminate of mercury which deposits on the canal. It is really the flushing out which does the good and not so much the antiseptic action. My usual douche is one of lysol (1—100). It forms a soapy, slippery

solution, and has great cleansing power. It is not non-poisonous as its manufacturers claimed for it.

I have now had a very large experience in obstetric work, both of the antiseptic and aseptic methods, and I have no hesitation in stating the latter gives by far the better results. I know that there are men in the profession who scoff at such views, but I trust that none of you will take up such an unreasonable attitude. All that we ask is for you to apply the same principles to your obstetric as you do to your surgical work. If you do this you may confidently expect your patients to make good recoveries, and if any thing goes wrong, you will not have to reproach yourselves with having failed in your duty towards your patient.

On Adenomyoma of the Uterus.

By S. J. Murdoch Cameron, M.B., Ch.B.,
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Frank E. Taylor, M.Sc., M.A., M.B., F.R.C.S.,
Pathologist, Chelsea Hospital for Women.

We are unable to find any detailed or systematic account of the subject of adenomyoma of the uterus in British gynæcological literature. In consideration of this fact, and having recently had the opportunity of investigating a specimen typically characteristic of this condition we venture to place our case on record:—

Mary P——, a married woman, aged 49, was admitted on January 22nd, 1903, into Chelsea Hospital for Women under the care of Mr. Bland-Sutton, whom we wish to take this opportunity of thanking for his kind permission to publish this case. Until she was seven years old the patient was considered to be a delicate child. Menstruation commenced at the age of 13, and has always been regular,—with the exception of the physiological intermissions incidental to child-bearing—until between two and three years ago. At, and for some time subsequent to, the onset of menstruation there was a good deal of pain at the periods, but of late years there has been very little. The periods last a week, and there is no great loss. For between two and three years before coming under observation there had been gradually progressive menorrhagia, the loss becoming very profuse, and latterly containing large clots. For five weeks before operation there was profuse metrorrhagia. She had had four children, two miscarriages, and two "false conceptions," the last pregnancy being six years ago. There has been no vaginal discharge between the periods, except that prior to 12 months ago she had a slight white discharge. There has never been any trouble with the functions of the bladder or bowels. Patient has become more and more anæmic with increasing metrorrhagia. On abdominal examination no pathological condition was determined. On vaginal examination the uterus was found to be enlarged, firm and freely mobile, as if occupied by a fibroid tumour. There was some "erosion" of the cervix and some sanguineous vaginal discharge. The diagnosis of fibromyoma of the uterus was made, and abdominal hysterectomy decided upon. On January 26th the abdomen was opened by a sub-umbilical median cœliotomy and the pelvis was explored. The uterus was found to be enlarged and to contain what appeared to be a fibromyoma about the size of a very small cocoanut. The uterus along with both appendages was removed, and only a very thin shaving of cervix was left behind. The two thin lips of cervix left behind were approximated with buried mattress silk sutures, and the peritoneum

was stitched up in the usual manner. The abdominal wound was sutured in three layers and no drainage was employed. Recovery was rapid and uneventful. The patient was discharged from the hospital cured on February 14th.

Pathological Report. The specimen consists of the enlarged uterus with one appendage attached, the other appendage having been removed at the operation. The measurements of the uterus are as follows:—Length, 5 inches; breadth, $3\frac{1}{4}$ inches; antero-posterior diameter, $2\frac{3}{4}$ inches. In shape it closely resembles a normal but enlarged uterus. Externally it is covered by peritoneum to a normal extent, the peritoneal covering being everywhere smooth and shining. Before section of the tumour it presented the appearances of, and was considered to be, an ordinary interstitial fibromyoma.

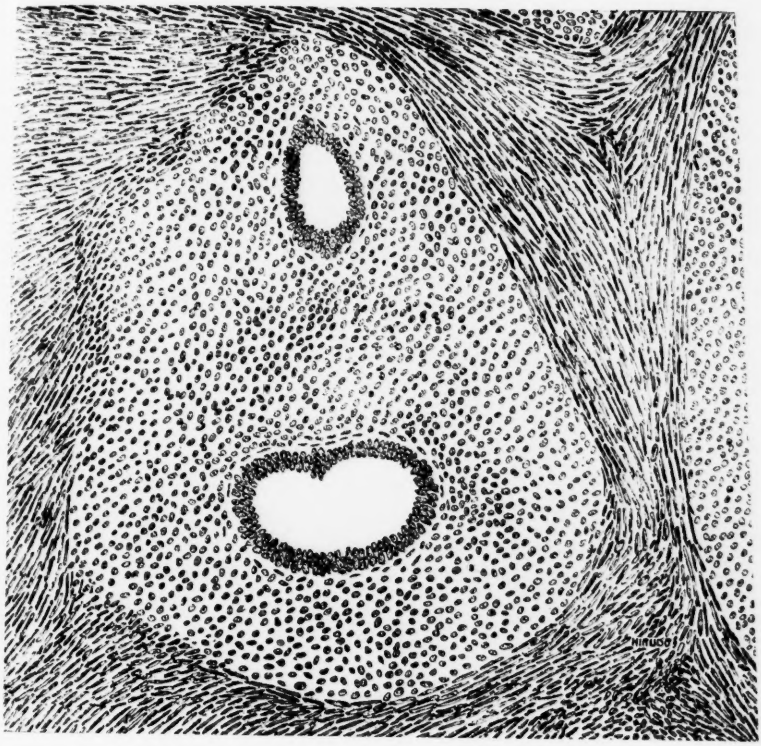
On making a section through the anterior wall of the uterus, however, a striking difference was observed. The tissues were hard to cut, and no trace of a capsule to the growth could be made out. The uterine wall was $1\frac{1}{4}$ inches in thickness, and could be readily differentiated into three layers, from within outwards, firstly, a thin layer of spongy, rather ragged endometrium; secondly, a mass of spongy-looking, coarsely striated tissue with striæ running in all directions, and not presenting the characteristic whorled appearance so typical of fibromyoma; and, thirdly, a layer of apparently normal uterine muscle about one-third of an inch in thickness. This appearance was present in the fundus and both anterior and posterior uterine walls as far down as a little above the os internum where the growth gradually faded away into the normal uterine tissues. Just beneath the peritoneum, where the growth and normal uterine tissues meet, was a small encapsuled nodule $\frac{1}{2}$in. × $\frac{1}{4}$in. in diameter. It was pearly-white in colour, composed of concentrically arranged fibres, and presented, in fact, the macroscopic appearance of an ordinary fibromyoma.

The uterine cavity, including the cervical canal, measured four inches in length. The mucosa of the cervical canal presented a number of longitudinal rugæ, and was not thickened; whilst that of the uterine canal was slightly thickened and ragged, but presented no marked polypoid excrescences, hæmorrhagic foci, or other pathological appearances.

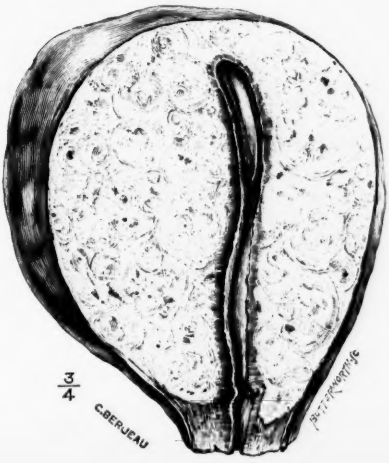
The attached appendage—the right one—showed the tube to be five inches in length, markedly tortuous, distinctly thickened and indurated, especially in its ampullary portion. The abdominal ostium was patent and was surrounded by large spongy fimbriæ. The

ovary measured 1¾in. × 1in. × ¾in. It was rough and puckered on its surface, and was white in colour except at one pole where the colour of a hæmorrhagic cyst showed through. On section several small cysts were seen; the largest, the size of a filbert, contained reddish-brown blood clot. The mesosalpinx was thickened so that no trace of the parovarium could be seen. The pedicle formed of broad ligament was also thickened and contained an excess of fibrous tissue and an unduly large number of blood-vessels. The opposite appendage showed very similar changes.

Histological Examination. The endometrium shows no abnormality, being composed of gland tubules embedded in an abundant stroma and covered by a layer of columnar epithelium. The epithelium of the tubules is columnar in shape, and the stroma consists of a richly cytogenic or lymphadenoid connective tissue. The bulk of the tumour is composed of bundles of plain muscular tissue, interspersed amongst which are gland tubules embedded in a mass of richly cytogenic lymphadenoid connective tissue. The gland tubules are composed of a single layer of columnar epithelium lying on a basement membrane which is everywhere intact, and except that some of them are slightly dilated into small cystic spaces and are lined by flattened epithelium, exactly resemble the gland tubules found in the endometrium. The presence of cilia can nowhere be detected on the epithelium of the gland tubules. In some of the cells lining the acini two nuclei apparently occupy a cell, and this resembles closely the condition figured by Mr. Bland-Sutton in his work on tumours when describing the "tubular" variety of cancer occurring in the uterus. The stroma exactly resembles that of the endometrium. It is composed of cells of various shapes, some being spindle cells, others round cells, and others again cells with many branching protoplasmic processes, the latter forming a fine-meshed network in the interspaces of which lie the round and spindle cells. The cell bodies are somewhat indistinct, and take up the stain indifferently, whereas the nuclei are distinct and well stained, stand out well, and lie in close proximity to one another. It is in some places directly continuous with the interglandular stroma of the endometrium, strands of gland-tubules, containing lymphadenoid stroma dipping down from the endometrium amongst and between the muscular bundles of the tumour. In other places the same arrangement exists, though no communication with the endometrium can be observed, the masses or islets of gland-containing lymphadenoid stroma being quite surrounded by muscular tissue. The whole thickness of the tumour



Adenomyoma Uteri Diffusum Benignum.



mass forming the spongy portion of the tumour seen with the naked eye shows this structure, so that gland-tubules are present up to within one-third of an inch from the outer serous covering of the uterus. This external layer of one-third of an inch is composed entirely of plain muscle fibres, and shows no traces of glandular structures.

From a consideration of these appearances we conclude that we have to deal with an adenomyoma of the uterus, the name adenomyoma denoting a new formation composed of glandular and muscular elements. We would distinguish, however, between a new growth due to muscular and adenomatous proliferation, that is to say, an adenomyoma proper, and a myomatous tumour which, in the process of its growth has cut off and included within itself glandular elements, such a tumour being more properly designated a "myoma with glandular inclusions."

In considering the ætiology of this variety of tumour it seems advisable to consider the matter from an embryological standpoint, since von Recklinghausen,* whose exhaustive researches are contained in the classical monograph on the subject, was strongly of opinion that uterine adenomyomata almost exclusively owed their origin to persistence of embryological structures. In his opinion the embryological structures from which these tumours are derived are in nearly every case persistent remnants of the Wolffian ducts, although he allows that in one of his cases the origin of the tumour could not be traced to these structures, but was probably derived from the uterine mucosa. It should be recalled that in early fœtal life the Wolffian and Müllerian ducts lie in close proximity to one another from the kidney to the sinus urogenitalis. The Wolffian duct, which persists as Gartner's duct, passes beneath the Fallopian tube in the broad ligament towards the uterus, into the lateral aspect of which it dips opposite the level of the os internum. It then passes through the cervix to the portio vaginalis and thence becomes reflected on to the vaginal fornix, runs along the lateral aspect of the vagina, and finally ends at the free border of the hymen. There is a specially close relationship between the Wolffian and Müllerian ducts at the point where the Wolffian duct passes beneath the Fallopian tube, close to the uterine cornu. It is held by some that the adenomyomata have their origin in the Müllerian ducts, whilst

* Die Adenomyome und Cystadenome der Uterus und Tuben-wandung. Berlin, Hirschwald, 1896.

others, closely following von Recklinghausen, hold that the *fons et origo* are the Wolffian ducts. In support of the latter theory it has been demonstrated by Meyer, Klein and others that "rest cells" derived from the Wolffian ducts occasionally exist in the wall of the uterus underlying the serosa, especially in the neighbourhood of the uterine cornua, and consequently the subperitoneal adenomyomata recognised by von Recklinghausen would seem to have a not unlikely origin from this source. Nevertheless even in this locality adenomatous formations have been found which seem to point to a uterine mucosal origin. The pathological difficulty in connection with the differentiation of tumours from these respective ducts is consequently very great, and it has been suggested that a means of distinguishing them may be found by consideration of the tumour site. That is to say, adenomyomata derived from the Wolffian ducts are subperitoneal and dorsal, whilst those derived from the Müllerian ducts are intramural or submucous and very frequently ventral.

On observing the course of the Wolffian ducts it can be readily understood that adenomyomata may occur in the Fallopian tube, broad ligament, uterus or vagina. The muscular elements in the tumour in such cases would probably be referred to the muscle substance of the uterus, which has been stimulated to increased growth by the proliferation of the Wolffian epithelium, the combined proliferation of muscular and epithelial elements thus giving rise to the formation of an adenomyomatous tumour. A similar stimulation of the musculature of the myometrium may be induced by its invasion by endometrial epithelium in those cases where the tumour is mucosal in origin.

According to the relative proportions of glandular and muscular elements present the consistency of the tumour will vary. Those in which the muscular substance greatly preponderates are hard, those in which there is an excess of glandular structure are soft, while still softer are those of the telangiectatic variety. Occasionally the gland tubules are dilated and contain fluid so that the tumour may attain large dimensions and be quite cystic, forming the variety known as cystadenomata. In accordance with these differences von Recklinghausen classifies the adenomyomata into four varieties:—

1. Hard adenomyomata, where muscle predominates.
2. Soft adenomyomata, where cellular elements are in excess.
3. Softest adenomyomata, or telangiectatic.
4. Cystic adenomyomata, where the gland-tubules are dilated and contain fluid.

The subperitoneal tumours are harder than those which are intra-

mural. The commonest site of all for these adenomyomatous tumours is the tubal angle. They are as a rule intra-mural, but have a strong tendency to become subserous, the serosa being bulged out in flat masses, and in some cases the peritoneum may be perforated.

There is no regular capsule around the tumour margin, and consequently they are of an infiltrating nature, or rather their infiltrating nature allows of no sharp differentiation from surrounding structures. However feasible the Wolffian " rest cell " theory of origin may seem there can be no doubt that many tumours owe their existence to the uterine mucous membrane. As noted above, such tumours are apt to lie centrally and very frequently ventrally, whereas the Wolffian duct adenomyomata have a tendency to be peripheral and dorsal. At the present state of our knowledge there is a certain degree of uncertainty as to the precise mode of origin of some of these adenomyomata. In those tumours arising from the uterine mucosa the mucous membrane can be seen dipping into the muscular substance at various points and penetrating between the muscle bundles. Thus glandular spaces come to lie throughout the tumour surrounded by a rich cellular connective tissue similar in every respect to the tissue found in the normal endometrium. In some recorded cases the presence of cilia has been made out in the cell spaces. The cells are arranged in a single layer, and this arrangement is maintained throughout the tumour mass. The epithelium is of a cylindrical form, but where cystic distension takes place it becomes cuboidal or even flat. In some tumours the cellular investment of the glands is absent at parts, and thus the muscle fibres come into contact with the glands.

The origin from the uterine glands can easily be detected, as at parts these glands are seen to send out offshoots which are accompanied by cellular tissue from the endometrium. These projections at first take the form of a peninsula due to the muscle fibres gradually encroaching on the offshoots, and finally glandular islets exist when the muscle fibres completely separate them from the endometrium. Von Recklinghausen considered this tumour very rare, and of his 33 cases only referred one to this origin. Such has not been the experience of some Continental and American observers. Kossman, Huser, Diesterweg, Lockstädt and Claisse all refer the origin of adenomyomata to the mucous membrane. Another explanation which has received but little attention is that of Eschoff, who considered that the peritoneum covering a myoma might dip into it, and thus be cut off in a manner precisely similar to the mucous membrane canaliculi. This view has been supported

by some of his own observations. Multilocular ovarian cysts may owe their origin to the tubes of Pflüger which are persisting epithelial tubules in the ovarian tissue derived from the germinal epithelium covering the surface of the ovary. Is it not possible that the peritoneum covering the uterus may be modified and having dipped into its substance form adenomyomata by proliferation? In tumours in which there is a tendency towards an increase in number and size of the vessels the telangiectatic variety is formed.

Cullen has described the presence of giant cells, but tubercle bacilli could not be discovered. Some French authorities consider the disease as microbic, and the leucocytosis sometimes found as evidence in support of this theory. The presence of adenomyomata in the broad ligaments has been observed, and they may occur at any part from their free margin to their uterine end. Von Recklinghausen was of the opinion that their occurrence there was purely a secondary matter—the original tumour being formed in the uterine wall and then extruded into the connective tissue of the broad ligament. In a case reported by Pick bilateral and symmetrical tumours existed in the broad ligaments corresponding to the epoöphoron between ovary and tube. Pick, from his own personal observations, differentiates between epoöphoral and paroöphoral adenomyomata—the latter being situated in the mesial portions of the broad ligaments, while the former are in its lateral parts. Many observers (Pick, Cullen, Martin and Cohen) found adenomyomata in the course of the round ligament up to its insertion into the labia majora. Von Recklinghausen frequently described adenomyomata as occurring in conjunction with infantile and malformed uteri. Freund gives the following clinical characters in connection with the adenomyomata:—

1. Patient's age 20—50 years.
2. Generally weak and unhealthy in childhood.
3. Menstruation appears late.
4. They have suffered from anæmia.
5. A constant symptom is dysmenorrhœa with profuse menstruation.
6. The majority are sterile.
7. Pelvi-peritonitic symptoms appear early.
8. Disturbed functions of bladder and rectum.
9. The patient's general health fails.
10. The genitals are infantile in character.

The vagina is short, fornices shallow, uterus anteflexed, cervix small, widening towards fundus.

Moreover these cases are less favourable than ordinary myomata, as castration or ligature of the uterine vessels has no effect. There is also a tendency to carcinomatous degeneration, and, according to some authorities, operation is more difficult.

We give here a table contrasting our case with the above:—

1. Patient's age 49 years.

2. Up till the age of seven years she was considered a delicate child.

3. Periods commenced at the 13th year.

4. Patient was not anæmic before the onset of her illness.

5. At the commencement of menstruation (13th year) and for some years afterwards she suffered much pain at the periods, but of late years she had very little pain. The menstrual periods lasted as a rule for seven days. She did not suffer from excessive loss till three years ago, and the periods were regular. During the last three years she has suffered from severe hæmorrhage at the periods, which were prolonged at times for four or five weeks.

6. She had borne four children, and had two miscarriages (first 16 years ago, fourth 6 years ago).

7. Never suffered from pelvi-peritonitis.

8. No rectal or vesical disturbance.

9. General health had failed gradually since the onset of her illness, till now she is very weak.

10. The genitals are well developed.

The patient since the operation has written to say that she is gaining strength daily, and her colour has much improved.

Vaginal Cæsarean Section, with Notes of Three Cases.*

By J. M. Munro Kerr, M.B., Ch.B.,
Obstetric Physician, Glasgow Maternity Hospital, etc.

The operation of Vaginal Cæsarean Section introduced to your notice to-night is one which so far has not aroused much attention in this country. Indeed I have recently come across quite a number of obstetricians who were entirely unaware of the meaning of the expression. In the English language I know of only one paper on the subject, that by Stamm in the November (1903) number of the *American Journal of Obstetrics*. In all probability the reason for this is that the metal dilators of Bossi and Frommer have so much engrossed attention that other methods of performing *accouchement forcé* have received but scant attention. Speaking generally, criticism has been adverse to the operation, although there are one or two outstanding obstetricians, such as Bumm, who have expressed themselves very strongly in its favour. While I cannot agree with all Dührssen claims for the operation, and would certainly not perform it as extensively as he recommends, I do think it is an operation of great value in certain cases.

While saying so much in favour of Vaginal Cæsarean Section, I have no sympathy with the position Dührssen has taken up in some of his recent remarks in regard to metal dilators, for such instruments, even those most prejudiced against them will admit, are in certain cases of great value and usefulness. It is most unfortunate when one treatment is pitted against another, and in the case of metal dilators and vaginal Cæsarean section this is specially so, for each has its place.

Dührssen without doubt got his idea of this operation from the method of removing small submucous fibroids by splitting the cervix, which all of us have employed for some years. He first described the operation in 1895 in connection with *accouchement forcé* in eclampsia. In 1896 he published a monograph, entitled "Der vaginale Kaiserchnitt." Since then he has published other papers and made many communications on the subject to different societies. His latest remarks which I have already taken exception to in so far as they condemn so decidedly the dilator of Bossi, appeared in the *Archiv für Gynækologie*, 1903, Bd. 69, Ht. 1, in which journal he

* Read at a Meeting of the Edinburgh Obstetrical Society, January 13th, 1904.

and Bossi have been advocating their respective methods in most emphatic language. Others, especially Bumm, have written very appreciatively of the operation, and in the Epitome of the *British Medical Journad* for November 7th, 1903, a case by Saft is described. If search is made of the literature one can collect about 50 cases in all.

In a paper read before the Glasgow Obstetrical Society on November 23rd, 1903, introducing a discussion on *accouchement forcé*, I discussed each of the methods of performing the operation—manual dilatation, dilatation by rubber bags, dilatation with metal dilators (Bossi, Frommer) and incisions. Now, without trespassing on the subject of dilatation with Bossi's instrument which Dr. Ballantyne is going to bring up to-night, I may give you the conclusions come to regarding the instrument from the cases in which I have employed the dilator. (1) When the cervix is obliterated and the os will admit the finger without difficulty dilatation can be carried out in about 25 minutes, and there will be little or no laceration. (2) In cases where the pregnancy has advanced to term or nearly so, even although the cervix is not obliterated, dilatation may be accomplished with comparative safety to the cervix provided care, time and patience are expended on the operation. (3) In cases where pregnancy is not far advanced great caution must be exercised in using the instrument, and in spite of the greatest care there will often be lacerations.

Before going further, however, it must be clearly understood that Vaginal Cæsarean Section is a much more extensive operation than the deep incisions one makes to hasten delivery in cases of eclampsia, rigidity of the cervix, etc., where the cervix has become obliterated. Here are two examples of that treatment:—Some months ago I was asked by Dr. Grieve, Langside, to see a primipara, who had been twenty-four hours in labour. I found her with severe pains which were coming on every few minutes, and a rigid cervix which admitted one finger. The pulse and temperature were normal, and so I advised waiting, the administration of full doses of opium, hot douching, and if need be later, cocaine. This was done, but although she got some rest from the opium, little, if any, progress was made, so that after some forty hours Dr. Grieve again asked me to see her. By this time I found the os only a little more dilated, the pains still coming on severely, but the temperature fully 100°, and the pulse-rate about 110. The child's heart sounds were also slower. I had no hesitation in saying that the uterus must be emptied. To accomplish this the choice lay between Bossi's

dilator and deep incisions. I chose the deep incisions, which I made on each side right up to the vault of the vagina. I then ruptured the membranes, applied forceps and delivered the child without much difficulty and without lacerating the perineum. The operation took from 4—5 minutes; the child was asphyxiated, but soon recovered. The placenta was allowed time to separate and was then expressed by Crédé's method. The uterus was douched and the cervix stitched with catgut. The patient made a good recovery. Some months afterwards I examined the cervix and found it had healed almost perfectly. The second case occurred the other day; she was a primipara about term who had been sent into the Maternity Hospital on account of eclampsia. She was comatose, and had had many fits; her pulse was 140—150, small and irregular. The cervix was taken up, but the external os only admitted one finger. As the pulse was so unsatisfactory I decided to incise the cervix rather than dilate with Bossi's instrument, and I was glad I did so, for the child was saved when otherwise it would almost certainly have been lost. As before, the cervix was split on both sides right up to the vault, forceps were applied, and a live but very deeply asphyxiated child delivered. This was accomplished without perineal laceration in six minutes. After some time the child was resuscitated; it still lives. The placenta was removed, the uterus douched and the cervix stitched with great care. Before the patient left the hospital the cervix was examined, when it was found that the wounds had healed perfectly.

Vaginal Cæsarean Section is a very much more extensive operation, for it consists in separating the bladder from the anterior uterine wall, possibly the peritoneum from the posterior and splitting the cervix anteriorly, and if necessarily posteriorly, right into the uterine cavity. Not only that, but, if need be, the making of extensive vaginal incisions. The two cases which have been performed in Glasgow are as follows:—At the end of October a patient, a iii.-para, and about five months pregnant, was sent into the hospital on account of persistent vomiting. Every medicinal remedy had been tried. With absolute rest in bed and feeding by the bowel the sickness was arrested, but whenever one attempted to feed her by the mouth the sickness returned. One night my House Surgeon informed me that the patient had become very ill, and when I went along to the hospital I certainly found her so. She had been vomiting continuously for hours. Her pulse was about 160 and extremely feeble, and she certainly looked as if she had not long to live. I therefore determined to empty the uterus.

After strychnine had been given, a mixture of ether and chloroform was administered. Repeatedly during the operation those in attendance could not feel her pulse. On examining vaginally I found that the cervix was completely closed and so rigid and firm that it would only admit a No. 10 Hegar. Do what I would I could not get in a larger size. Now, here I say there was absolutely no alternative in the way of treatment, for if I had plugged or put in tents and waited for the os to dilate sufficiently the woman would have been dead. The only treatment was *Vaginal Cæsarean Section*. I separated the bladder well up as one does in vaginal hysterectomy, and it slips off the gravid uterus with the greatest ease. I then split the cervix right up beyond the os internum, and without any trouble scooped out the fœtus and placenta. The whole operation took about four minutes. I then douched out the uterus, stitched up the wound, brought the bladder down again, and tacked it into its place, and finally put a loose piece of gauze into the vagina. The patient began to improve very shortly after the operation, and left the hospital in a most satisfactory state. She had no trouble with her bladder, and the wound healed perfectly, there being only a little dimple at the edge of the os externum. The second case which I will mention is one which my friend Dr. McLellan described at the last meeting of the Glasgow Obstetrical Society when we were discussing *accouchement forcé*, and he kindly said that I could refer to it to-night. The patient was a primipara, who after being 36 hours in labour was considered by Dr. McLellan to require prompt delivery. He incised the portio vaginalis, but finding that he did not obtain sufficient enlargement of the canal he stripped off the bladder and incised the cervix up the middle line. The child was extracted alive, and the stitching of the uterus afterwards was performed with the greatest ease. These two cases illustrate the ease of the operation and the fact that the after-stitching is not difficult.

The first and greatest argument in favour of Dührssen's operation is that sometimes it is the only method by which rapid emptying of the uterus is possible. Take for example case i., just described, where the cervix was so rigid that it would not stretch, or the case reported by Ehrendorfer (*Zentralblatt für Gynäkologie*, April 18th, 1903), also a case of uncontrollable vomiting in which the cervix could not be dilated. I am quite aware that such cases of extreme rigidity of the cervix are not common, and that they are very infrequent in the later months of pregnancy. Nevertheless every obstetrician of experience, and specially if he has a hospital

practice, is liable to meet with them occasionally. If he refuses to adopt this method he has no alternative but to pack the cervix with gauze or some expanding tent and wait, and in some cases if he does that he will lose patients.

The second advantage is that the uterus can be emptied much more rapidly, for, roughly speaking, four or five minutes only are required. Here again the advantage is only occasionally of great importance. In most cases the difference between emptying the uterus in five minutes and in thirty minutes as with Bossi's dilator is immaterial. Still there are cases when the child's or mother's life or perhaps the lives of both may be saved by the more rapid method.

A third advantage claimed is the absence of shock. If a patient is deeply anæsthetised there generally is not much shock in forcibly dilating the cervix either with the hands or metal dilators. Sometimes, however, especially in heart cases and bad cases of eclampsia, even although the patient is apparently deeply under the anæsthetic, I have seen a degree of shock produced, although never in my experience so far has it been alarming. Personally, therefore, I cannot attach great importance to this claim.

The last advantage I shall mention is that the operation is more surgical and that you have a clean cut to deal with. There is no doubt the operation is more surgical; it appeals to and satisfies the man of surgical instincts more than does forcible dilatation; you will therefore find it advocated most strongly by such men. That, however, does not of necessity make it the better operation, and it is a claim that should not be advanced for it proves nothing.

As regards the matter of having a clean cut to deal with, I think most of us will admit that when we have a cut to treat we prefer that it should be clean rather than lacerated, and if we knew that a cervix was going to lacerate with Bossi's dilator we would prefer incision; but we cannot tell that beforehand, and indeed, taking the recorded cases all over, there are not such a great number of lacerations recorded. But are there any cases where you may expect lacerations and where consequently you are better to incise than to dilate? I think there are.

In the *British Medical Journal* for January 9th is a short paper on *accouchement forcé*, more especially by means of Bossi's and Frommer's dilators, I emphasised the danger of forcibly dilating the cervix in cases of pregnancy of seven months or under. I have thrice seen extensive lacerations occur in such cases, twice in cases of my own. Many others have had a similar experience. In some cases also, they are not many I grant, one encounters great

rigidity of the cervix even in the later months; such are the cases where you may expect lacerations and where incisions are better.

The most adverse criticism has come from those who have neither seen nor performed the operation, and in this particular matter I am not surprised, for the operation *à priori* one would expect to be of considerable magnitude and difficulty, especially the after stitching. It is not so, however. The bladder can be pushed off the cervix with great ease, much more easily than in the non-gravid uterus. The incisions are not difficult to make if scissors are employed. The stitching is the most difficult part of the operation and requires good light and assistance. But if the edges are grasped firmly with volsellum forceps one can get the stitches introduced without much trouble, and the dragging on the uterus completely controls any hæmorrhage.

Allowing all that, one must, however, admit that it is an operation requiring some surgical experience, and is consequently not one suited for ordinary general practice. There Bossi's dilator, if it can at all with safety be employed, has its place. The other objection that at a subsequent pregnancy and labour there will be difficulty may or may not be true; so far no one can speak from experience; I should expect not, however.

If one looks over the literature of the subject one finds that malignant disease of the gravid uterus, eclampsia, heart disease, accidental hæmorrhage, persistent vomiting have been the chief indications. Now it is a little difficult and perhaps not wise to predict the place Vaginal Cæsarean Section will occupy in the future. That it has come to stay I am certain. It will usually be the operation of choice in cases where the cervix is too rigid to dilate and where the uterus must be emptied at once, in cases where every moment is of value in emptying the uterus, and in cases where there is a likelihood of laceration occurring if metal dilators are employed. *Perhaps, and here I think I am on safe ground, its great place will be in accidental hæmorrhage in which so many recommend hysterectomy.* As regards the operation in eclampsia, it should displace ordinary Cæsarean section in the rare cases of unobliterated and rigid cervix; Bossi's dilator, however, will serve for most cases.

Since the foregoing paper was written I performed the operation (Feb. 13) in a case of eclampsia with a result by no means very good. The patient, a primipara, about eight months pregnant, was admitted to the Glasgow Maternity Hospital with a history from her doctor

that she was having eclamptic seizures every few minutes, and that to his knowledge she had had between twenty and thirty fits. She had three in the ambulance waggon and five while being washed and prepared for operation. There was hardly any interval between them and they were very severe. Her condition was critical, as her pulse was becoming more rapid, feebler and intermittent. I decided to empty the uterus by *accouchement forcé* and chose Vaginal Cæsarean Section, because the cervix was not in the slightest degree taken up and was so rigid. The operation was extremely difficult, for the canal was very narrow and œdematous. To add to the difficulty the cervix could not be pulled down as the uterus caught on the brim, which was slightly contracted. I separated the bladder, incised the cervix, and extracted the child with forceps. It was dead. There was hardly any bleeding after delivery and the uterus was tonically contracted so that the cervix could still not be pulled down, and it was with great difficulty I stitched the cut edges of the cervical wound. Passing a catheter into the bladder I was sorry to find there was a small laceration about its neck. How it had occurred I cannot say, it was so low down that I can hardly think I did it with the scissors. More probably it was produced in dragging the head through the undilated passage. The patient made a most excellent recovery. After delivery she had four fits, but at long intervals. She is to-day (February 17th) quite sensible and passing large quantities of urine partly by the vagina, but chiefly through the winged catheter which is fixed into the bladder.

CRITICAL REVIEW

The Treatment of Eclampsia.

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Bearing in mind the prevailing want of unanimity upon the subject, it occurred to me that it would be very interesting and might be profitable if I could obtain the opinion of the various authorities in the United Kingdom as to how they would treat eclampsia, and to this effect I prepared and despatched a circular containing various questions to every teacher of obstetrics, obstetric physician, and physician to the lying-in institutions in England, Scotland, Wales and Ireland, whose name I was able to ascertain. I sent out altogether one hundred and ten circulars and the names of those who replied will be found at the end of this paper. A glance at the list will show it to contain the names of the chief authorities in the United Kingdom on the subject, and to all these gentlemen I offer my best thanks and appreciation for the great trouble they have taken in letting me know so fully, as they practically all did, what they considered the best method. Exigences of space necessarily prevent my printing every reply in full, a course I would have liked to pursue had it been possible, but I propose in connection with each line of treatment to include a list of those authorities who are in favour of it or otherwise.

Eclampsia may be treated in one or more of the following ways:—

1. By the administration of drugs.
2. By venesection.
3. By saline injections.
4. By baths and packs.
5. By Abdominal Cæsarean Section.
6. By Vaginal Cæsarean Section.
7. By *accouchement forcé.*
8. By delivery with forceps or version after full dilatation of the cervix.

1. By the Administration of Drugs.

Chloral. This may be given by the mouth or rectum and is said to act better when given with an equal quantity of potassium bromide. It

is more especially prescribed where the fits do not stop after delivery and chloroform is contra-indicated. As it decomposes in the blood into chloroform its dose is somewhat difficult to regulate. Charpentier is greatly in favour of its administration and finds in a series of cases collected from various sources, numbering 239, that the mortality when only chloral was given was 4 per cent., but when combined with any other line of treatment 8·5 per cent. He injects a drachm of chloral mixed with three ounces of mucilage into the rectum, if not retained he gives another and so on till it is retained. In six hours he gives another drachm, which as a rule suffices, if not he goes on till he has given half an ounce in the 24 hours. Herman refuses to accept these figures as correct, since no medical man would give chloral to a comatose patient. Therefore there would be a natural selection of the milder cases for treatment with this drug. On reference to the answers returned concerning this drug I find that the majority do not use it. Dakin, McCall, Robinson, Boxall, Maclean, Wallace, Ballantyne, Kinkhead and Jardine use it occasionally. Spencer and Williamson think it is at times of very great value. Eden thinks it inferior to morphia. Croft, as a rule, gives it either by mouth or rectum, as does Rayner by the latter method. Bonney thinks it is dangerous. Ranken Lyle would not use it on account of its depressing effect. Stephenson considers that it is not to be trusted in a fully developed attack, since its full action dangerously aggravates the serious after effects of the seizure and Byers thinks that when it is given to control the fits it acts just like the poison which is the cause of the eclampsia and increases the tendency to death. Hellier administers it per rectum after labour to keep off recurrence of fits, and Haig Ferguson and Kinkhead find its administration very useful in mild cases given early per rectum, as it seems to materially help the dilatation of the cervix.

Chloroform. This drug is said to modify the number of fits, prevent the rise of temperature, ameliorate the condition of coma, relieve the venous congestion, and lower the arterial tension. Opinions differ considerably whether it should be given as a routine treatment, but everyone is, I think, agreed that it should be given whenever any operative measures are contemplated.

On reference to my circular I find that, whilst all use chloroform for operative measures, the majority also use it at times in combination with other treatment, either during the fits or when other means of controlling them have failed. Routh thinks it is essential to tone down the convulsions. Horrocks thinks it is useful in warding off

the fits and both use it as their principal drug. Sir John Williams, Champneys and Tate think it the best drug to use if the fits are frequent. Wright uses it exclusively. Blacker, Fothergill, Lockyer and Russell use it till morphia has had time to act, and Kinkhead till chloral has had time to act. Byers thinks that its use for controlling convulsions is to be deplored since it increases the tendency—in a similar way to chloral—to deaths. Eden thinks it should never be used upon an unconscious patient. Herman thinks but very little of the chloroform treatment and does not advise its administration. He thinks it absurd to talk about giving chloroform when the fits come on, since these are not preceded by any sure symptoms, neither would there be time to administer it if they were, and during the tonic phase the patient is unable to inhale. If the patient is restless she must be put fully under its influence and kept so, as long as any restlessness is present, so that she might have to be a very long time under its influence, which, even supposing the medical man could give the time, is in itself an element of danger.

Morphia. Half a grain of morphia followed by a quarter of a grain when necessary until the patient is sound asleep is the usual dose. It inhibits metabolism and so stops the formation of poisons, whilst large doses remove the state of spasm in the renal arteries and so favour urinary secretion. The morphia is given as long as the patients are the least restless, and Veit has given as much as three grains in four hours. Most physicians think that the maximum quantity to be used in 24 hours should be two grains. Veit has treated 60 cases with two deaths, and thinks the failures are due to the fact that an insufficient amount of the drug has been given. Löhlein, in 325 collected cases, reported a mortality of 13·8 per cent. when this drug was used. On looking at the answers to my circular I find that the majority use it as a routine measure. Sir John Williams, Edgar and Newnham do not use it. Champneys has used it very little, and has noticed that it is liable to increase the coma. Dakin remarks that, although it has given him most excellent results, they have been no better than by the rapid completion of labour with chloroform. Eden and Fairbairn only advocate its use when the symptoms are not urgent. Horrocks has never seen it do any good. Spencer thinks highly of it and finds it checks the fits better than any other drug he has tried but considers half a grain too large a dose and has seen symptoms of severe poisoning when given in doses of half a grain. Tate considers it very valuable if the fits are not very frequent. Croft is in favour of it if the renal embarrasment is not marked. Kynoch is uncertain

as to its effect on the child. Munro Kerr never gives it in labour but only before or after. Jardine has entirely given up its use. Stephenson thinks it is dangerous if the right heart is inclined to be overloaded. Nicholson gives as much as a grain at a dose and repeats with half a grain until the thyroid extract comes into action, and thinks that its beneficial result is due to its effect on the arteries, as in a large dose it is the most prompt and powerful vaso-dilator we have. Herman is in favour of it as it does not require the continual presence of the doctor, and it is safer to put a patient into a deep sleep with morphia than to keep up the inhalation of chloroform for several hours.

Pilocarpine. Is said to prevent the recurrence of fits. Its peculiar danger seems to be its liability to cause œdema of the lungs and excessive secretion, so that the patient may be practically drowned. The majority of my correspondents do not use pilocarpine. Bonney always gives it and has never seen any ill effects. Champneys, Eden, Herman, Lyle, Spencer, Tate and Williamson think that it should not be used, it being a very dangerous drug. Croft prescribes it in the premonitory stages. Haultain is in favour of it. Haig Ferguson and Brice Smyth frequently use it as an adjunct to other treatment, and have seen no ill effects from it. Stephenson thinks it is useful but in a limited field. Pearson has seen great benefit from its use.

Purgatives. These act by lowering the arterial tension, removing any scybala that may be a source of reflex action and expelling some of the poison. The majority of the authorities I have heard from, whilst stating that they give purgatives as a routine treatment, give no particular reason for so doing. Herman sees no reason for supposing that purging does any good, but, on the contrary, thinks it is more likely to do harm. He advises against it. Jardine prescribes salts, and states that he has often seen croton-oil fail and on two occasions cause œdema of the glottis. Champneys and Eden, believing that the poison may be generated in the digestive tract, strongly advocate purgatives. Fairbairn and Lockyer think that purgatives are only indicated when the case is not of an urgent type. Newnham never gives purgatives. Nicholson believes in mercurial purgatives only. Kinkhead, Gibson and Wilson prescribe enemata, while Fothergill and Kynoch are in favour or rectal lavage, especially if the patient is comatose. Rectal lavage is best performed by using at least a gallon of hot water. A large funnel is attached to one end of a rubber tube four feet long. The other end is passed into the rectum. The funnel is raised and water is poured into it till no more

will flow. The funnel is then lowered and the return water received in a pail. This process is repeated till the return water is clear and is then continued until the return water becomes bile stained.

Thyroid extract. This substance aids the metabolism of nitrogenous substances, the formation of urea, which is a powerful diuretic, and is a powerful vaso-dilator, and therefore favours renal activity. Nicholson gives 40 grains of the extract and follows it up soon afterwards with a similar dose and continues till signs of " thyroidism " appear. He suggests that the drug might be given hypodermically or per rectum to an unconscious patient. On reference to the answers sent in I find a very large majority have had no experience of thyroid administration. Croft has used it with no effect. Maclean has used it three times with beneficial effect. Haig Ferguson has found it to be a good diuretic. Ballantyne has used it and thinks well of it. Kynoch noted that in a case of albuminuria and pregnancy it had no appreciable effect in diminishing the output of albumen or increasing the amount of urine.

Veratrum Viride. This drug lowers the blood-pressure by dilating the arteries and depressing the heart. It is also said to promote the activity of the skin, to lower the temperature, to relax the cervix and to promote diuresis. It is administered hypodermically for an initial dose of 20 minims of the fluid extract, followed by 10 minim doses every half-hour until the pulse keeps below 60, since convulsions are practically unknown with such a pulse-rate. The average mortality in America is between 20 and 25 per cent., whilst Parvin collected 284 cases treated with veratrum viride with a death-rate of 8 per cent. This Herman thinks does not represent the true value of the drug since only successes lead to publicity.

It is contra-indicated when the pulse is weak and irregular; it may cause vomiting and collapse which, should they ensue, are best treated by alcohol or morphia. The patient must be kept lying down when under its influence. Kynoch states that he only gives three doses and that if the pulse-rate does not come down appreciably after this he thinks there is no use in continuing it. Croft has used it recently in a few cases with benefit. Rayner and Edgar give it in cases where the pulse is strong and rapid. Russell speaks unfavourably of its use. Stephenson remarks that it " modifies and relieves more directly and beneficially than any other drug I have known the vascular derangement that endangers life." Jardine has entirely given up the use of the drug, and Swayne often uses it. Mangiagalli reports 18 cases treated by this drug with 17 recoveries.

2. By Venesection.

This, one of the oldest remedies, is advocated because for a time, at any rate in some cases, it reduces the frequency of the fits. Charpentier states that in 210 cases it reduced the frequency of the fits in 43·8 per cent. and increased the frequency in 21·8 per cent., whilst in 34·4 per cent. it had no effect. The value of this treatment, however, appears in most cases to be doubtful, although under certain circumstances of over-dilated right heart and engorgement of the lungs, it is of undoubted value. Those in favour of it base their opinion on the fact that it lowers arterial tension and abstracts some of the poison. Whitridge Williams thinks that venesection is indicated in all cases where delivery of the child is not followed by cessation of the fits. He abstracts 500cc. of blood and injects 500cc. of saline solution, thus for all practical purposes removing a quarter of the total quantity of the poison circulating in the body. If anæmia causes the fits bleeding would seem to be contra-indicated, and Herman quotes some figures of Tarnier and Chambrelent which show that the mortality with bleeding is 43·2 per cent. and without 29·7 per cent.

On reference to the replies to my circular I find that the great majority think that bleeding should only be employed when great cyanosis is present and should then be followed by a saline injection. Blacker, Lockyer, Fothergill, Munro Kerr and Russell are in favour of it as a routine treatment followed by saline injection. Spencer considers that in the majority of cases the patients are not in a fit condition to stand it. Kynoch bleeds if drugs do no good and Herman thinks but little of the theoretical argument that it is of use because it reduces the high arterial tension, since this hypothesis assumes that for a patient with eclampsia high arterial pressure is a bad thing, whilst, for all we know to the contrary, it may be of benefit. But the fact that bleeding does reduce the frequency of the fits leads him to think that it may be of temporary benefit. Swayne is greatly in favour of it.

3. By Saline Injections.

The saline injection acts by relaxing the arterioles and lowering the blood-pressure with a consequent greater supply of blood to the glomeruli of the kidney and renewal or increase of the urinary secretion; marked diuresis, however, does not often follow till 24 or 36 hours after the injection according to Nicholson. It also causes diaphoresis and, of course, dilutes the poison. Jardine, who has written extensively on the subject has

succeeded by its use in lowering the mortality of eclampsia in the Glasgow Maternity Hospital from 47 per cent., at which figure it stood for the 15 years previous to its introduction, to 17 per cent., the mortality for the last three years; the patients in both cases belonging to the same class. Jardine uses no other method now except administration of magnesium sulphate and chloroform, and the latter only when any manipulations are taking place.

The saline injection is made up of acetate and chloride of soda, one drachm of each to the pint. As a rule Jardine runs it into the cellular tissue under the breasts at a temperature of 100°F. A douche-can or funnel, four feet of rubber tubing and a small aspirator needle are all that is necessary. The water should be boiled before use. Two pints should be injected at a time, and repeated if necessary.

On examining the answers to my circular I find they can be divided into four classes:—(1) Saline is injected to take the place of the blood abstracted by venesection, which is employed for plethora only; (2) bleeding is advocated as a routine measure with the intravenous injections to follow (a reference to the section on *Venesection* will give the authorities); (3) saline infusion is thought to be contraindicated—Kinkhead, McCall and Newnham do not use it, and Spencer is not satisfied that it does any good; and (4) the treatment is used as a routine measure and thought highly of by Robinson, Martin, Stevens, Targett, Tate, Eden, Hellier, Croft, Rayner, Wallace, Wilson, Ballantyne, Edgar, Haig Ferguson, Kynoch, Munro Kerr, Russell, Campbell, Brice Smyth, Purslow, Wright who uses it in collapse, Lyle in anuria, Stephenson principally for after treatment, and Williamson, who uses it as a diuretic only.

4. By Baths and Packs.

Hot water bath. A method of treatment advocated by Breus. It cannot be used if delivery is near, and it is difficult to use if the patient is restless. The reported results are good. The patient is wrapped in a sheet and put into the bath, the water being kept at 102°F. or a little higher for half an hour, then taken out and wrapped in a blanket, then more blankets wrapped round her and she is then allowed to sweat for two hours. Herman thinks it is worth trying in early cases of labour or after labour, and that it is especially called for when a patient is dying from coma, the fits have ceased, the pulse is beginning to fail, and the temperature is normal or subnormal.

Hot air bath. This acts in a similar way to the hot water bath and is easier to manage.

Hot pack. This is the easiest method, and can be used by wringing a sheet out of very hot water and wrapping the patient in it, wrapping macintosh round this, then putting hot water bottles all round her and lastly enveloping the whole in blankets. Blacker and Bonney use hot air baths when they can, Boxall and Rayner when there is anuria, Lyle when there is œdema, and Hellier when there is coma after delivery. Champneys and Eden chiefly in the premonitory stages, and Spencer has used them many times with benefit. Croft, Fothergill, Wallace, Russell, Jardine, Campbell and Nicholson (the latter uses hot fomentations over the lumbar regions in addition) all use the hot pack as a routine treatment, also Maclean when there is a marked œdema, and Ballantyne if the case is very severe. Hot packs or hot air baths are used by Dakin after delivery, Haig Ferguson either then or in pregnancy and the early stage of labour, Donald when the case is severe, and as a routine by Gibson and Munro Kerr unless contra-indicated.

Kynoch uses the hot pack or hot water bath after delivery, in the early stages of labour, or in pregnancy. Targett, Newnham, Wallace, Wright, Kinkhead and Williamson never employ any of these methods.

Cold bath. Herman strongly advocates this treatment in those hopeless cases where, with a very rapid pulse, the temperature steadily rises to 108°F. or so. The patient should be placed in a tepid bath between 70° and 80°F. and kept in it from a quarter to half an hour till the temperature has fallen to 102°F., then be wrapped in blankets and allowed to sweat. He thinks he has seen life saved by it and that its use in such cases is imperative. Andrews and Routh also reply that they would use them under these conditions.

5. Abdominal Cæsarean Section.

The advantage over other violent methods of delivery is stated to be that it is quicker and there is less shock than in the more violent methods of *accouchement forcé* and a better chance of obtaining a living child. Its indication is said to be in those exceptional cases when the cervix is so very rigid that it cannot be dilated sufficiently to get a bag in, but there seems to be not the slightest justification for its performance as a routine measure. Apart, however, from any obstruction of the hard or soft passages, it should only be done in those rare cases where the patient having died during the attack,

a living fœtus can be detected in utero, and, of course, it is then a right and proper procedure.

Herman views it with great disfavour. Spencer remarks that "Abdominal Cæsarean Section is (and always has been) an absolutely unjustifiable operation for eclampsia, the patient can be delivered by rapid dilatation per vaginam in less time and with less danger." And this, more or less, agrees with the majority of the answers I received; a small minority not commenting on this particular subject. Haultain has performed the operation once with an unfavourable result. Published statistics show a death-rate of 47·7 per cent.

6. Vaginal Cæsarean Section.

Dührssen considers this operation easier than the application of forceps, dilatation of the cervix by Bossi's dilator (although he has never tried this method), or craniotomy, and in his hands it takes five minutes, whilst he maintains there is not the same danger of lacerating neighbouring tissues as when using steel dilators. It is performed as follows:— A circular incision is made through the mucous membrane of the vaginal portion of the cervix close to the fornices and extended into each lateral fornix for half an inch. The cervix then being pulled down with a volsellum, is divided in the middle line in front and behind, the bladder being held back with a retractor. The anterior incision is then carried up as far as is necessary, carefully avoiding the peritoneal cavity. An opening 8cm. to 12cm. in length is obtained, which gives room for the fœtus to be delivered by version or forceps. The bleeding is controlled by forceps or the uterine vessels may be tied, the placenta and membranes removed, a gauze tampon placed in the uterus and the incisions closed with catgut. The operation is recommended in pregnancy or early labour where the cervix is difficult to dilate owing to its rigidity. In reply to the circular the majority think the operation quite unjustifiable. Munro Kerr has peformed it in the case of a rigid cervix with success and found it very easy.

7. Accouchement Forcé.

De Ribes' Bag. If the os is large enough to admit two fingers the bag can be inserted at once, if not the cervix has to be dilated with Hegar's dilators or tents; the bag acts as a slow dilator and takes, as a rule, four to five hours to thoroughly dilate the cervix.

Before using it one must be careful to ascertain that it does not leak and can bear the pressure of water, also it is necessary to know how much water it will hold; it is a good way of dilating the cervix and will not injure it. It is used either before labour comes on—if the cervix will not dilate,—or to hasten the dilatation of the cervix. The following use it on certain occasions: Andrews, Bonney, Champneys, Eden, Dakin, Fairbairn, Horrocks, Robinson, Routh, Spencer, Targett, Tate, Williamson, Boxall, Hellier, Maclean, Campbell, Wallace, Wilson, Wright, Haig Ferguson and Nicholson.

Manual dilatation (Harris's method). The patient must be deeply under chloroform. The index finger having been passed through the os the second finger is passed in by its side. Then the second finger is removed, and the thumb pushed past the index finger with a similar motion as is employed in snapping the fingers. The cervix is then dilated with the index finger and thumb, and the second, third, and fourth finger gradually introduced. If the cervix is rigid great force will be required, and there is a danger of lacerating the cervix, and a resulting death from sepsis or bleeding. Bonney, Champneys, Fairbairn, Lockyer, McCall, Robinson, Spencer, Stevens, Gibson, Williamson, Boxall, Croft, Fothergill, Hellier, Maclean, Newnham, Rayner, Wallace, Wilson, Kirkhead, Wright, Ballantyne, Edgar, Haig Ferguson, Kynoch, Nicholson, Stephenson, and Jardine all employ this method on occasion.

Bossi's dilator. There are various steel dilators in use, but this with four blades and Frommer's, which has eight, are the best known. Bossi claims for this instrument, which he has used since 1890:—

1. That it dilates the cervix in any stage of pregnancy and in any condition with certainty and success.
2. The time taken in dilatation can be regulated from ten minutes upwards.
3. It is under the operator's control and affords both a mechanical and dynamic action.
4. It can be used by any private practitioner.
5. It entails no subsequent sutures.
6. It causes no fatigue to the hand.

Dührssen criticises the instrument severely after an exhaustive study of the reported cases. He admits that he has never used it, but states that it is dangerous, inefficient, useless, uncertain, since in every case sufficient dilatation cannot be obtained to get a living fœtus. He thinks that the lacerations which may cause death from

hæmorrhage or sepsis are uncontrollable. Bossi maintains that if the middle and index fingers are kept in the cervix dilatation is supervised and laceration may be entirely avoided. A reference to the reported cases shows that when the cervix is taken up there is very little risk of laceration if proper care is used, but when the cervix is not taken up then, owing to the prongs not passing through the internal os, there is greater danger, especially if the cervix is drawn upon to steady the uterus with a volsellum. About three minutes for each centimetre of dilation appears to be the best speed to use.

The advantages of manual dilatation are that the operator, as he is only using the fingers, can tell exactly what he is doing. Its disadvantages are the time it takes, the difficulty, at times amounting to impossibility, if the cervix is rigid, and the exhaustion to the hand. Blacker, Spencer, Martin, Ballantyne, Haig Ferguson, Haultain, Kynoch, Munro Kerr, Russell, Jardine and Byers have all used the instrument and speak well of it, the latter stating that he has found it of great service and is inclined to interfere sooner, obstetrically, in these cases than formerly. Croft, after trying Bossi's dilator, prefers his fingers.

Cervical incisions. For rapid delivery Dührssen has lately advocated the value of deep multiple cervical incisions, and claims that he can always extract a living child afterwards; that the incisions are controllable and less likely to cause bleeding or sepsis than steel dilators. Other authorities advise against the operation since much surgical skill is required. It also appears that the extraction of the child will often seriously increase the incisions; the parametrium may be widely opened and the uterine artery torn. Effacement of the cervix is said to be absolutely necessary, and therefore the operation is especially applicable to primiparæ. Four cuts are usually made in the four quadrants with scissors up to the vaginal roof. Jardine incises the cervix if it is rigid and there is any difficulty with Bossi's dilator in dilating, and Haultain advises free incisions if labour has not commenced, and Bossi's dilator shows any sign of causing tearing.

8. Delivery with Forceps or Version as early as possible.

By this method of treatment the attendant relies entirely on drug treatment until the cervix is sufficiently dilated to deliver by forceps or version. A list of those favouring this line of treatment will be found below:—

Herman stands alone in contending that the only proper and

safe treatment is to do absolutely nothing unless some complication other than eclampsia calls for further treatment. Cases of eclampsia before or at term, can be divided into two classes:—(1) Where labour has not yet come on. (2) Where labour has come on. I now propose to try and analyse the answers to my circular in order to make it as plain as possible what line of treatment each authority recommends.

Where labour has not yet come on.

Induce labour. Sir John Williams, Eden, Fairbairn, Williamson, Croft, Newnham, Haultain (if before six weeks from term), Stephenson, Byers, Gibson, Kinkhead, Campbell, Jardine and Ballantyne, the last three if fits are severe.

Do not induce labour. Andrews, Lockyer, Herman, Stevens, Fothergill, Ranken Lyle, Maclean, Purslow, Ballantyne, Haultain (if within six weeks of term), Munro Kerr, Nicholson, Jardine, Pearson.

Hasten labour. Blacker, Bonney, Dakin, Horrocks, McCall, Routh, Champneys, Tait, Hellier, Rayner, Wallace, Wilson, Wright, Haig Ferguson, Russell and Spencer, who says, nevertheless, that he is not satisfied that this is good treatment if the os is not dilated.

Leave the case to nature. Unless it is indicated that more urgent treatment is wanted:—Boxall, Duncan, Targett, Donald, Edgar, Martin, Kynoch, and Brice Smyth.

(I include the last two paragraphs because I think from the replies many who merely write hasten labour mean they would induce and those leaving the case to nature mean they would not.)

Where labour has come on.

Wait till the cervix is naturally dilated and then deliver with forceps or version. Sir John Williams, Boxall, Horrocks, Targett, Croft, Donald, Fothergill, Rankin Lyle, Campbell, Gibson, and Brice Smyth.

Manual dilatation with forceps or version. Lockyer, McCall, Croft (if cervix does not dilate properly), Newnham (22 cases without a death), Wilson, Stephenson, Pearson and Nicholson.

De Ribes' bag with forceps or version. Andrews, Bonney, Dakin, Fairbairn, Routh, Targett, Eden and Duncan (if fits don't stop with drug treatment), Tait, Campbell and Fothergill (if cervix rigid).

Bossi's dilator with forceps or version. Blacker, Martin, Haultain, Munro Kerr, Russell and Byers.

Manual dilatation or De Ribes's bag with forceps or version. Boxall, Williamson, Herman, Hellier, Maclean and Wallace.

Manual dilatation or Bossi's dilator with forceps or version. Bonney, Ballantyne, Kynoch, Jardine and Kinkhead.

Spencer writes that he has adopted all the above measures except incising the cervix and Vaginal and Abdominal Cæsarean Section.

Champneys hastens labour so far as is consistent with gentleness. "Some cases require the immediate evacuation of the uterus by any or all the methods mentioned."

Sir John Williams writes:—"For many years I have induced labour in all cases in which convulsions had set in. . . . The method employed usually was the introduction of bougies, not for two or three inches but for their whole length, and rupture of the membranes. I did not interfere until the os uteri was dilated and used no artificial means of dilating it except in those in which I induced labour by tents, a method I think highly of. When the cervix had been dilated I used forceps or not as seemed desirable in the individual case."

Herman allows no interference of any description, and in the case of the child being dead, would certainly let the woman die also without delivering her, as he holds that the woman has more chance if she is left alone than if she is delivered. At the International Congress in Geneva in 1896 the weight of opinion was in favour of emptying the uterus as quickly as possible.

The great reason for emptying the uterus is to stop the fits, but whether it does so in the majority of cases is a matter of doubt. Herman has collected over 1,500 cases, and by a careful examination of most of the original papers proves conclusively that

The fits continue *after* delivery in ... 52·5% of the cases.
The fits stop *on* delivery in ... ... 47·5% „ „ „

But it may be argued that the *danger* is lessened by emptying the uterus, although the fits do not stop, since the mortality of those treated actively is less than that of those treated by expectant treatment, and that with active treatment the case becomes one of post-partum eclampsia, which is the least dangerous of any variety. To test this Herman takes the results of over 1,600 cases collected from various sources, and finds that the mortality with active treatment is a little less than that of expectant treatment, and even if recent cases only are taken where the increased antiseptic precautions are naturally in favour of lowering the mortality of active treatment, the difference of 2 or 3 per cent is so small that if

hurried delivery were indiscriminately practised by all who attend labour in all cases the mortality arising from operative delivery would soon overbalance the trifling and doubtful benefit of emptying the uterus.

At the International Congress at Paris, in 1900, Porak gave the mortality for *accouchement forcé* as 6·3 per cent., and Bumm states that the mortality from forcible delivery is less than by any other method of treatment.

How, then, is one to reconcile all these different statements and results? Why should one man get his best results with the most forcible means of delivery at his disposal, whilst another's experience shows that exactly the opposite is true, even making every allowance for the element of chance and the degree of poisoning? Is it possible, as was suggested in the critical review on the causation of eclampsia, that eclampsia is in reality, like puerperal fever, a symptom of a number of separate and distinct diseases, and therefore the results of treatment might differ according to which variety one was treating?

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LIST OF THOSE WHO REPLIED TO CIRCULAR.

LONDON

Sir John Williams, Bart.
Dr. Russel Andrews
Dr. Bell
Dr. Victor Bonney
Dr. Boxall
Dr. Champneys
Dr. Cullingworth
Dr. Dakin
Dr. Wm. Duncan
Dr. Eden
Dr. Fairbairn
Dr. Herman
Dr. H. S. Hicks
Dr. Horrocks
Dr. Lockyer
Dr. Annie McCall
Dr. Playfair
Dr. Drummond Robinson
Dr. Amand Routh
Dr. Spencer
Dr. Stephens
J. H. Targett, Esq.
Dr. Tate
Dr. Williamson

PROVINCES AND WALES

Dr. Croft, Leeds
Dr. Donald, Manchester
Dr. Fothergill, Manchester
Dr. Hellier, Leeds
Dr. Ranken Lyle, Newcastle
Dr. Maclean, Cardiff
Dr. Malins, Birmingham
Dr. Martin, Sheffield
Dr. Newnham, Clifton
Dr. Purslow, Birmingham
Dr. Rayner, Clifton
Dr. Walter Swayne, Clifton
Dr. Wallace, Liverpool
Dr. Wilson, Birmingham
Dr. Wright, Leeds

SCOTLAND

Dr. Ballantyne, Edinburgh
Dr. J. Edgar, Glasgow
Dr. Haig Ferguson, Edinburgh
Dr. Haultain, Edinburgh
Dr. Jardine, Glasgow
Dr. Munro Kerr, Glasgow
Dr. Kynoch, Dundee
Dr. Milne Murray, Edinburgh
Dr. Oliphant Nicholson, Edinburgh
Dr. A. W. Russell, Glasgow
Dr. Stephenson, Aberdeen

IRELAND

Prof. Byers, Belfast
Dr. J. Campbell, Belfast
Dr. M. J. Gibson, Dublin
Dr. Kinkhead, Galway
C. Yelverton Pearson, Esq., Cork.
Dr. Brice Smyth, Belfast

REVIEW OF CURRENT LITERATURE.

OBSTETRICS.

A note on the Cytology of the Liquor Amnii.

DANIEL (M. CONSTANTINE). *Comptes Rendus de la Soc. d'Obstét. de Gynécol. et de Pædiat. de Paris*, January, 1904.

WIDAL and Ravant, have conducted researches upon the character of the cells found in pathological exudates and normal secretions in the human body, and M. Daniel has applied their methods to the examination of the liquor amnii. This research has been directed to the elucidation of the following points: (1) What cellular elements are constantly present in the normal fluid? (2) Do other forms of cells make their appearance in pathological conditions of the mother or of the child? Thirty-eight specimens have been examined (*a*) 24 from women who passed through a normal pregnancy and were delivered naturally at full term; (*b*) 14 from cases of abortion, premature labour, syphilis, hydramnios and albuminuria. In class (*a*) three forms of cells were found:—

(1) Fœtal epidermal cells in great numbers.

(2) Epidermal cells from the inner layer of the amnion in much smaller numbers.

(3) A few leucocytes, chiefly of the poly-morpho-nuclear variety.

In class (*b*) the following results were obtained:—

In cases of premature labour the epidermal cells are present as above, but the leucocytes are less numerous, and before the 6th month are entirely absent.

In hydramnios the amniotic cells are few in number, but the leucocytes are present in large numbers. No red cells are found.

In syphilis, in addition to the other elements, a few lymphocytes are present.

In albuminuria "profound modifications of the physical characters of the liquid are found, it becomes thick, yellow, etc.; epidermal cells, red-blood corpuscles, poly-morpho-nuclear leucocytes and lymphocytes are all found, but much altered."

In none of the cases examined were any renal, vesical or intestinal epithelial cells found.

The exact significance of the presence of the leucocytes is difficult to determine, they are greatly increased in number at the time of the beginning of labour, they are present also in quantity, in certain pathological conditions.

In the liquor amnii discharged when the membranes ruptured, micro-organisms were always present, but the number depended largely upon the time which was allowed to elapse before the examination was made; and to ascertain whether micro-organisms were present before labour commenced a number of experiments were performed. Attempts were made to produce septicæmia in pregnant guinea-pigs and rabbits, but they were unable to resist even mild injections and invariably aborted a few hours later. A direct examination of the liquor amnii was then made; after laparotomy a tube was passed into the interior of the uterus and one or two cubic-centimetres of liquor amnii withdrawn. This fluid only contained granular, nucleated cells; into the same ovum a culture of Eberth's bacillus was injected, and three hours later the abdomen again opened and more liquor amnii withdrawn; it now contained a large number of poly-morpho-nuclear leucocytes. "We have here, then, a mechanism of defence of the ovum in the entrance of these large quantities of white-blood corpuscles. These results are interesting for they show in a conclusive manner that the presence of leucocytes in the liquor amnii is an abnormal phenomenon, and our experiments show that it is due to a modification in the contents of the ovum and to the infection of the liquor amnii." The author concludes, from these preliminary investigations, that in health the cells of the liquor amnii present definite characters, and that in pathological conditions of the ovum or of the mother, an alteration in the forms and characters of these cells is constant.

HERBERT WILLIAMSON.

"Angular" Pregnancy: Its Physiological and Pathological Importance.

WASSILIEFF. *Bulletin de la Soc. d'Obstét. de Paris*, December 17, 1903. No. 9.

BUDIN, Bar and Brindeau have drawn attention to an unusual condition which may occur during the first two or three months of pregnancy, and to which Wassilieff has applied the name of "angular" pregnancy. In this condition the ovum is developed in one angle of the uterus in such a way as to give the impression that it is contained in a sac which is quite separate from the rest of the uterus. Wassilieff records three cases, the two first of which have already been published in the thesis of Ouvrier (1900).

CASE I. The patient presented symptoms of internal hæmorrhage and a fluctuating mass was discovered apparently separate from, but attached to, the uterus. A diagnosis of extra-uterine pregnancy

was made and abdominal section was performed. At the operation the ovum was found to be contained in one angle of the uterus. Abortion followed the operation.

Case II. A pregnant woman with symptoms of internal hæmorrhage and with acute distension of the abdomen. A similar condition was discovered, but no operation was performed and by the fifth month the uterus presented the usual characters of a gravid uterus at that stage of pregnancy.

Case III. Patient, æt. 32, had given birth to one child five years previously. Menstruation ceased on December 15th, 1901. On January 20th, 1902, the abdomen became distended and there was pain in the left iliac region. On January 23rd there was a slight loss of blood and the abdominal pain and distension became more marked. On February 20th there was a loss of red watery fluid and the abdominal pain was severe. On March 20th Wassilieff saw the patient. In the left hypogastric region was a globular fixed painful mass the size of a "mandarin." On bimanual examination the fundus uteri was found a finger's breadth above the symphysis. The abdominal mass was separated from the uterus by a well-marked depression and it was very elastic. The uterus and the mass moved together. Extra-uterine pregnancy was diagnosed and an operation recommended. This was refused by the patient. A month later the uterus had assumed the characters of the normal pregnant uterus and the patient was eventually delivered normally at the full term.

Wassilieff points out how likely such cases are to be mistaken for instances of extra-uterine pregnancy.

G. Drummond Robinson.

Myasthenia Gravis and Pregnancy.

Kohn. *Prager Med. Wchnschr.*, May 14th, 1903.

The writer describes an interesting case of this rare condition in association with pregnancy, and reviews the literature on the subject. The patient was a v.-para, 27 years of age, and was first seen at the fourth month of pregnancy. Ever since the birth of her last child, about 14 months previously, she had complained of great weakness after the slightest exertion. Ordinary walking produced attacks of giddiness and faintness, and after such exertion if she attempted to swallow any liquid, unless she swallowed very slowly and carefully, it regurgitated by the nose. After speaking for any time she had the feeling that she must speak through her nose. She complained of diplopia after using her eyes for a short time, and it was found that she could not close her eyelids entirely. Severe frontal headache was present, and the pain often radiated over the top of the head to

the occipital region. The patient exhibited all the characteristic symptoms of myasthenia gravis, including the "myasthenic reaction," which was particularly well marked in the biceps. She had always been a healthy woman, and there was no history of alcohol or syphilis. She had never before suffered from similar symptoms, except on two occasions—ten years ago, and also six years ago,—when she had had attacks of fainting somewhat like those which she now complained of. During these attacks, which lasted over an hour, she was quite unconscious and bit her tongue and lip.

No atrophy of the muscles was found, and the reaction of degeneration was not present. The field of vision was unimpaired, and the retinæ were normal. There was no paralysis of the palate. The patient was kept in bed for five days, and then the "myasthenic reaction" could not be obtained. She then returned to her home, continued to improve, and pregnancy ended normally at term with the birth of a living child. Two days after delivery she became very weak, her pulse was feeble, and the breathing became difficult and stertorous in character. Death occurred the same day.

Kohn recapitulates the leading features of the case, and says there can be no doubt that it was one of myasthenia gravis. The insufficiency of the eye muscles, the speech disturbances, the difficulty in swallowing, the tiredness of the muscles with the presence of the "myasthenic reaction," the absence of atrophy, and the mode of death, form a sufficiently characteristic clinical picture of the disease. Referring to the two unobserved attacks of fainting, with prolonged unconsciousness and biting of the tongue, Kohn considers that they were probably epileptic fits. While there is no definite reference in literature to the association of myasthenia gravis with epilepsy, Oppenheim mentions a case where the brother of the patient was an epileptic. Pregnancy had a distinct bearing upon the course of the disease in Kohn's case, resulting in a sudden development of the symptoms after delivery, with a rapidly fatal termination. In one previous case the patient died during pregnancy, and in another (Sinkler's), all the symptoms appeared suddenly after delivery. But in other pregnancies in these patients no effects were apparently produced. Goldflam had seen a case of myasthenia gravis where, on two occasions after pregnancy, relapses occurred; and he had also noted the sudden appearance of almost all the symptoms at the end of the period of lactation. The prognosis of myasthenia gravis is made worse by conception, and it would seem to be worth while to consider the question of the induction of premature labour in some cases. The prognosis as regards the child is favourable.

OLIPHANT NICHOLSON.

Hydatid Mole and Ovary, a Contribution to the Pathology of the Corpus Luteum.

JAFFÉ. *Archiv für Gynäkol.*, 1903. Bd. lxx., Heft 3.

THE writer quotes a number of observations in which hydatid mole was found, together with multiple corpus-luteum cysts, in which lutein cells were detected. He next describes the case of a patient 39 years old, with a normal obstetric history. She complained of pain and bleeding, dating from the second month of her tenth pregnancy, and three months later expelled a hydatid mole. The bleeding continued and a tumour of the right ovary as large as an apple was discovered. The uterus and appendages were removed and the patient made a good recovery, though loss of weight and anæmia had suggested the existence of chorio-epithelioma. The specimens are next very fully described. There was a hæmorrhagic new growth in the right horn of the uterus which invaded the inner third of the uterine muscle and presented the microscopic characters of chorio-epithelioma. A number of corpus luteum cysts were found in each ovary, the right one being enlarged by cysts varying in size from that of a cherry to that of a plum. The linings of these cysts contained a large quantity of tissue composed of lutein cells. The writer argues as follows: There are, in many cases of hydatid mole, unilateral or bilateral ovarian growths composed of corpus-luteum cysts, some of them microscopic in size, others as large as apples. These can form not only from true and false corpora lutea but also from undeveloped follicles. There is rapid and copious production of lutein tissue, which, with vascular growth of the theca interna, leads to a distribution of lutein cells throughout the ovarian parenchyma. The transformation of cells of the theca interna into lutein cells can usually be observed. This process is not peculiar to cases of hydatid mole, but is often seen in ordinary pregnancy, and apart from pregnancy, but in all cases of hydatid mole in which the ovaries have been carefully examined there appears to have been a marked over-production of lutein cells.

The theory of Born, worked out by Frænkel, is that the corpus luteum is a gland, renewed monthly, whose internal secretion presides over menstruation, and in case of fertilisation, over the implantation of the ovum in utero. But the ovum becomes implanted by the activity of the trophoblast. Therefore the corpus luteum presides over the activity of the trophoblast. Therefore, if too much lutein tissue is formed in the ovary, there will be overgrowth of the trophoblast and later of the chorionic epithelium. That is to say, there will be vesicular degeneration of the ovum. This argument the writer considers to dispose of previous views as to the origin of

hydatid mole—namely, that the condition depends upon an abnormal decidua. He holds that ovum and decidua are both healthy, but that the covering of the ovum is incited to undue proliferation by the presence in the maternal blood of an excess of the internal secretion of the corpus luteum, thus being determined by undue formation of lutein tissue in the ovary.

W. E. FOTHERGILL.

Difficulties in Labour after Vaginal Fixation.

DÜHRSSEN. *Berlin. klin. Wchnschr.*, November 16th and 23rd, 1903. Nos. 46 and 47.

IN this communication Dührssen discusses the after results of the operation of vagini-fixure—he prefers this expression to that of vagini-fixation as better Latin—more especially with regard to pregnancy and labour, and gives short notes of a second series of 49 cases, making with his first series, 79 in all, in which pregnancy occurred after this operation. Of these 79, five were only under observation during pregnancy, and in two abortion was induced on account of albuminuria and tuberculosis. In these seven cases of pregnancy the development of the uterus appeared to be quite normal. In the 72 cases of labour one death occurred—a case of placenta prævia with severe hæmorrhage. This he does not ascribe to the vaginal fixation, but to a pre-existing catarrh of the internal organs which had led to a tubal pregnancy a year before, for which he had performed vaginal section.

Artificial aid was necessary in nine out of the 72 labours; in seven of these it was on account of such conditions as placenta prævia, eclampsia, footling presentation with prolapse of cord, primary and secondary uterine inertia, and in two only was it due to rigidity and deficient dilatation of the portio. Further, in one of these in which perforation was resorted to, marked cervical hypertrophy—the uterus measured 14cm.—was present before the operation. In the other case four deep incisions were made in the cervix, but the author naively explains in his table (case 58) that this was not done on account of any strict indication for immediate delivery, but because he was called away to operate on a ruptured tubal gestation; had this not happened he would have used a Champetier de Ribes' bag, and thus avoided the incisions in the cervix. In five cases the labour was lingering; in no case was there a transverse position of the child. Nine children died, but the author does not consider any of these deaths in any way dependant on the consequences of the vaginal fixation, though among them is the case of perforation mentioned above. Except one case following

a twin birth, no return of the displacement was observed. Also these recorded cases show several instances where a preceding sterility or a one-child sterility has been cured after the operation.

The points on which the author lays stress are—1st, fixation with a single silkworm gut suture, which is removed after six weeks; 2nd, that it must be passed through the anterior wall of the uterus near its upper border; and 3rd, that the opening in the peritoneum must be carefully closed. He considers that it is not the high fixation of the uterus, but the fixation of the whole anterior wall of the uterus by means of several stitches, which leads to subsequent difficulties in labour.

JOHN S. FAIRBAIRN.

A Clinical Investigation on the Induction of Premature Labour in Contracted Pelvis.

HAHL. *Archiv für Gynäkol.*, 1903. Bd. lxx., Heft 3.

THE writer gives the history of the operation in Denmark, Norway, Sweden and Finland, and analyses the 84 cases in which labour has been induced in Helsingfors. These cases extend over 32 years, the first having been observed in the year 1870. Each case is described in considerable detail. The number of labours in which the 84 cases occurred was 23,000, the operation thus was done once in 274 cases. (Compare Leopold, one in 131; Braun Fernwald, one in 441; Chrobak, one in 627; A. Pinard, one in 150.) The 84 operations were done upon 47 women (13 twice, 6 once, 4 four times). Only one patient was a primipara. The ages varied from 21 to 43. The indication was in each instance a moderate pelvic contraction. The earliest date was the thirtieth and the latest the thirty-eighth week, the average lying between the thirty-fifth and thirty-sixth week. There were seven transverse and 14 breech presentations. The complications were placenta prævia (once), rupture of the uterus (once), prolapse of the cord (thrice). Of the 84 cases, labour ended spontaneously in 25, the remaining 59 being terminated artificially by forceps or turning (perforation twice). The maternal mortality was two; one from puerperal fever and one a sudden death whose cause could not be ascertained. This was equal to a mortality of 2·38 per cent. The puerperium was febrile in six cases, or 7·23 per cent. Of the children 63 were born alive, that is 75 per cent. Eight of these died during the first 24 hours of life and five died within the first two weeks. Fifty children, or 59 per cent., survived over a year. The writer compares these results with those of many authorities, and it is interesting to note that John Moir (*Scottish Med. and Surg. Journ.*, 1898, Vol. xi., No. 6)

records the most favourable results, namely 80·8 per cent. of his 73 cases were successful as regards the life of the child. Various methods of inducing labour were employed in Helsingfors at different periods. The bougie was used in 25 cases, but was superseded since 1891 by the "catheter with condom." Tarnier's intra-uterine dilator was employed either alone or with other methods in 22 cases. Champetier de Ribes' bag came into use after 1894 and was found invaluable. These four methods are recommended, others which were tried have been entirely abandoned. The writer does not compare induction of labour with Cæsarean section and symphysiotomy, but points out that the results of induction have steadily improved during the last 30 years, and considers that the operation still has a valuable place in obstetrics.

W. E. Fothergill.

Puerperal Morbidity after the Birth of Macerated Fœtus.

Kothen. *Archiv für Gynäkol.*, 1903. Bd. lxx., Heft 2.

The writer has collected from the journal of the Women's Hospital in Giessen 70 cases in which the birth of macerated fœtuses occurred from 1889 to 1903. These are tabulated and analysed. A definite rule is adopted in estimating the number of "morbid" cases and by applying this standard to the ordinary labours occurring in the same hospital during the same years, Kothen arrives at the conclusion that the morbidity after the delivery of macerated fœtuses is from 10·8 to 11 per cent. higher than the ordinary morbidity. The discharges were fœtid with slight rise of temperature in most of the morbid cases. The cause generally appeared to be infection after rupture of the membranes and before expulsion of the fœtus.

W. E. Fothergill.

Congenital Cystic Degeneration of the Lung in the New-born Child.

Couvelaire. *Annales de Gynécol. et d'Obstét.*, November, 1903.

The author points out the rarity of this condition, but reports an interesting case that occurred in the Clinique Baudelocque. He maintains that such congenital bronchiectases throw some light on similar congenital conditions sometimes met with in other organs, such as the kidney, liver and pancreas.

The case, which was that of a new-born male infant, weighing 3,520 grammes, lived six days. The labour was normal, and the placenta showed no morbid or macroscopic changes. On the fifth

day after delivery the child was attacked with cyanosis which rapidly increased, and it died next day. At the *autopsy* the abdominal organs were found healthy, but on opening the chest the middle lobe of the right lung was found enormously distended, covering the heart and displacing it towards the left. The left lung was normal; the other lobes of the right lung were in a condition of complete atelectasis. There was some blood-stained effusion in the pleural cavity. The middle lobe of the right lung was enormous (7·5cm. × 6·5cm. × 4·5cm.). It was of different colour from the upper and lower lobes, and appeared to contain air. On cutting into the lobe it was found filled with a large number of irregular cavities, some measuring 1cm. in diameter. The cavities contained air and were lined in places with a rough yellowish membrane. The right ventricle of the heart was hypertrophied. Microscopically, the cavities in the middle lobe of the right lung were found to consist of innumerable cysts disseminated in the pulmonary parenchyma. In places the cavities contained intra-cystic proliferations and septa. The cavities themselves were irregular in shape, and diverticula were observed stretching irregularly into the connective tissue trabeculæ of the lung. The bronchi and bronchioles were everywhere rudimentary and only represented by isolated nodules of cartilage. Besides the larger cystic spaces already described other smaller cavities were observed which had definite adenomatous characters. These were lined with high cubical epithelium. The cystic cavities and the adenomatous formations communicated with one another, but the two different types of spaces could always be readily distinguished. The general architectural framework of the lung was otherwise more or less normal. Both the upper and the lower lobes were in a state of atelectasis. The liver, kidneys, pancreas and thyroid were congested, but otherwise normal. Couvelaire considers the condition to be a congenital malformation and degeneration of the left broncho-pulmonary system, the spaces and adenomatous formations being really bronchi and bronchioles, the framework of which is only rudimentarily represented by the isolated nodules of cartilage and connective tissue in which small branches of the pulmonary artery could be traced.

The author refers to the scanty literature of the subject, and the cases reported by Grawitz, Balzer, Grandhomme, Kimla and others, and contends that there is a very striking resemblance between this condition found in the fœtal lung with similar congenital cystic formations occurring in the kidneys, liver and pancreas.

C. Hubert Roberts.

A Case of Acute Yellow Atrophy of the Liver.

BRAUNER (L.). *Wiener klin. Rundschau*, December 13th, 1903.

A WOMAN, aged 26, was admitted to hospital after three days' illness. She had complained at first of pain in her chest, then of feeling sick. There had been no actual vomiting. The night before admission she had been delirious. She was evidently very ill, and was jaundiced. How long the jaundice had been present could not be ascertained. There was no evidence of phosphorus or any other poison having been taken.

On admission the skin and sclerotic showed deep yellow staining. She was drowsy, tossing to and fro on the bed and groaning; pulse frequent, temperature slightly raised. Abdomen greatly distended, liver dulness diminished, spleen much increased in size, pregnant uterus reaching up to two fingers' breadths above the umbilicus. The urine was the colour of dark beer and contained a small quantity of albumen and much bile pigment. On the next day she was more drowsy and had incontinence of urine and fæces. On the second day after admission the jaundice was more marked and there was delirium. The patient became comatose and died.

At the *autopsy* parenchymatous degeneration of the heart muscle and of the kidneys was found. On opening the abdomen the liver could not be seen. It was high up in the hypochondrium, much diminished in all dimensions and flattened. It was $9\frac{1}{2}$ inches in breadth, 7 inches in height, and 2 inches in thickness. The left lobe was only as thick as cardboard, and $1\frac{1}{2}$ inches in breadth. On section the liver substance was brownish-yellow with many red patches. No phosphorus was found. The uterus contained a six months fœtus which was not macerated.

HENRY RUSSELL ANDREWS.

Training of and Regulations of Midwives in Italy.

Lancet, January 9th, 1904.

IN Italy the bulk of the obstetric practice is in the hands of midwives. Reliable Italian statistics as to death-rate attending pregnant, parturient and puerperal women are only obtainable as far back as 1887. In that year, out of one million inhabitants, 85 died of puerperal fever. From this date a gradual diminution of the death-rate occurred until the year 1902, when only 32 patients succumbed per million to that disease. The death-rate from other diseases of pregnancy, parturition and the puerperium, fell from 150 per million of the population in 1887, to only 53 per million in 1902. One

of the most potent factors in this improvement has been the better equipment of the midwife. Training schools for midwives exist in every town possessing a university or medical school. These are under the direction of the professor of obstetrics and their cost is defrayed by the Government. Similar training schools exist in towns that do not possess medical schools, the cost of these being defrayed by the local authorities. Every obstetric school for midwives possesses, in addition to the professor of obstetrics, at least one doubly qualified medical man and one certified midwife, both being appointed by the Minister of Public Instruction. No obstetric school can be established except in connection with a maternity hospital which contains at least 15 beds and gets through its beds at least 120 patients per annum.

The number of pupils must not exceed double the number of beds contained by the hospital. Some pupils are intern and some are extern. They must be of good physique and health, of good character, and not younger than 18 nor older than 36 years. Before being admitted to the first examination for the diploma the candidate must have passed the entrance examination of the third elementary class or other equivalent test and paid the matriculation and inscription fees. The fees for the curriculum and diploma amount to £3 11s. When admitted to the school they are given an inscription card upon which a report of their progress is made every two months. The teaching itself is partly theoretical and partly practical; the former represents lectures by the professor and the latter consists of instruction at the bedside. The theoretical course lasts one year, the practical beginning simultaneously with the theoretical lasts two years for extern pupils and one year and eight months for intern pupils. There are two examinations for the diploma; one is held at the end of the first year and consists of a written part lasting not longer than four hours and an oral part lasting half an hour. The second examination is held at the end of the second years and is entirely oral and practical, lasting at least one hour.

Regulations for midwives came into force in the year 1890, and are as follows:—

Article 1.—Every midwife must provide herself with a bag containing the means necessary for assisting at a natural labour and for arresting hæmorrhage in urgent cases. In this bag must be kept a copy of the instructions which accompany the present regulations.

Article 2.—The midwife will attend with the greatest possible accuracy to the rules laid down in the instructions.

Article 3.—The midwife is obliged to call a doctor immediately anything abnormal occurs in the course of labour, or during the puerperium, and immediately the temperature, as taken with a

thermometer placed in the axilla for 15 minutes, passes 38°C. (100·4°F.).

Article 4.—Should no doctor be procurable the midwife, as soon as the temperature taken as above rises at any period of the puerperium over 38·5°C. (101·3°F.), will notify the municipal authority of the fact in order that the necessary measures may be taken. In case she should fail to do so she will be punishable by fine.

Article 5.—The midwife is hereby prohibited from employing surgical instruments or practising manual operations on the fœtus in utero for which she is not authorised by her diploma, except in the cases of exceptional urgency where it is not possible to procure medical aid in time and in regard to which the midwife assumes the responsibility of her action. Any contravention of this article is punishable by a fine of not less than 100 lire (£4).

Article 6.—A midwife who has attended a woman affected by any infective puerperal process must abstain from the exercise of her profession for at least five days wherever it is possible to provide other help for obstetric cases. In any case the midwife must not approach another pregnant, parturient, or puerperal woman without having had the written authorisation of the communal sanitary officer who will ascertain whether she has been subjected to a thorough and effectual disinfection according to the rules prescribed in the instructions accompanying the present regulations. Any contravention of this injunction is punishable by a fine of 500 francs (£20) and with imprisonment for from one to six months.

Article 7.—Every midwife must keep a register of the confine-finements she attends by order of the communal authority, recording each case as soon as possible after the termination of labour.

Article 8.—In terms of the sanitary law midwives are entitled to have the medicines and antiseptics which they require for the poor whom they attend in labour, supplied to them gratuitously by the commune or institution whose duty it is to provide gratuitous attendance for the parturient poor.

J. T. Hewetson.

GYNÆCOLOGY.

Notes on some Cases af Premature Menopause.

SIREDEY (ARMAND). *Comptes Rendus de la Soc. d'Obstét. de Gynécol. et de Pœdiat. de Paris*, December, 1903.

THE writer comments upon the very scanty literature we possess upon this subject, and points out that although in the majority of instances some cause, local or constitutional, can be found to explain the early cessation of menstruation, there still remains a group of cases, by no means small, in which no such lesions can be detected. Five such cases have been met with in his own practice during the last three years; briefly summarized they are as follows:—

1. H——, 35 years of age; menstruation commenced at 17, was perfectly regular up to the age of 32, then symptoms of the menopause appeared and menstruation ceased. Examined two years later the woman was in perfect health, no pelvic lesion could be discovered, but the uterus exhibited senile changes.

2. Patient aged 36 years; at 25 she was delivered of living child after an easy labour; the puerperium was without complications; at 35 the menopause occurred. The general health a year later was unaffected, pelvic examination disclosed the fact that the uterus had undergone marked senile change, but otherwise nothing abnormal could be discovered.

3. Patient aged 26; menstruation commenced at $16\frac{1}{2}$; regular until the age of 18, when, after a severe attack of typhoid fever, menstruation ceased; she married at 22, but no pregnancy followed. The uterus in this case again showed marked senile changes.

4. Menstruation commenced at 15 and was perfectly regular up to the age of 26, when the periods suddenly ceased; patient married at 23 but never became pregnant. The menses did not appear and seven years later she died of diabetic coma.

5. Patient aged 22; menstruation commenced at 18 and was regular up to the age of 20 when she married. Pregnancy followed almost immediately; the labour was easy and uncomplicated, but from this time the menstrual periods ceased. On examination marked senile changes were found.

These were all cases, not of temporary amennorrhœa, but of the menopause, and associated with cessation of genital activity. It is true that in Case 3 the condition dated from an attack of enteric fever, and that in Case 4 a grave malady subsequently developed, but these can hardly be regarded in the light of causes. Cases 2 and 5 may be regarded as instances of super-involution, but the conditions associated with this affection are lacking. It is interesting to note

that in these five cases the functions of the genital organs did not appear to be very active, the onset of menstruation was late, only two of the women became pregnant, and in each case there was only a single pregnancy. Another striking feature is the very slight constitutional disturbance, this is in marked contrast to the premature menopause induced by the removal of the ovaries.

The diagnosis can hardly be made at the first examination, but even when the cessation of menstrual periods is of recent date, if the symptoms associated with the normal menopause are present, if the body of the uterus is diminished in size and the cervix atrophied, the condition may be suspected, but proof positive can only be furnished by a later examination.

Treatment is very unsatisfactory, ovarian extract, iron and arsenic may be tried, but much is not to be expected from them.

NOTE.—In the next volume of the *Comptes Rendus* there is a further report of a precisely similar case by M. Henri Hartmann. In discussing this case M. Pinard observed that three different conditions must be distinguished: (1) amenorrhœa, (2) superinvolution, (3) the premature menopause, and proposed that at a future meeting of the society the question should be discussed.

HERBERT WILLIAMSON.

Endometritis and Cardiac Debility.

GOTTSCHALK. *Zentralbl. für Gynäkol.*, 1903, No. 49.

THE writer claims to have demonstrated, on pathological evidence, that endometritis exfoliativa is primarily due to weakening of the heart's action. He recently exhibited before a German medical society some sections where two conditions were very clear. Firstly, the membrane was seen becoming detached by effusion of blood beneath it; secondly, that bleeding was caused by very marked venous stasis, another result of which disorder of circulation was shown by numerous venous thrombi under the endometrium. These thrombi were clearly the result of enfeebled heart's action, as was verified by the clinical history of the case whence the sections were procured. There had been slight œdema of the lower extremities without albuminuria. Gottschalk urges, on the above evidence, constitutional treatment for endometritis exfoliativa directed against cardiac debility, as most likely to bring about cure and subsequent conception. On the other hand, the curette and other forms of uterine therapeutics are not suited to a disorder which is not essentially local.

ALBAN DORAN.

Total and Subtotal Abdominal Hysterectomy in the Treatment of Fibroids.

BATIGUE (P.). *La Gynécologie*, December, 1903.

THIS paper by Batigue is an answer to Richelot's paper on the same subject abstracted in the January number of this JOURNAL, and is based on the discussion that followed its reading before the *Société de Chirurgie*. Richelot's views may be summarised as follows:—

1. Subtotal hysterectomy has no advantages over total.

2. The cervical stump may be the starting point of a malignant tumour on account of certain relations between uterine hypertrophy and malignant degeneration.

3. Total hysterectomy is, therefore, a better operation than subtotal.

As regards the first statement the opinion of thirteen speakers is that "Total hysterectomy takes a little longer to perform, and is a little more difficult and a little more dangerous than subtotal hysterectomy." As regards the second most of the speakers disagree with Richelot. Faure admits that the cervical stump may be the seat of a malignant tumour and also that malignant degeneration of fibroids is not rare, but considers that the cervical stump is less likely to become carcinomatous than is the normal cervix.

Guinard, who was struck by the relatively large number of cases in his own practice in which carcinoma occurred in the vaginal scar or pelvic connective tissue after panhysterectomy, considers that if the patient is "cancerous" removal of her cervix will not prevent the appearance of cancer.

Richelot, in his description of "total" hysterectomy, says that a little uterine tissue is often left on the lips of the vaginal wound. Ricard, criticising this says: "Between the 'total' operation of Richelot and the 'subtotal' of everybody else, there is only a difference of a few millimetres of cervix." He considers "that in only one of the cases reported by Richelot was it probable that the carcinoma was not present in the cervix at the time of the subtotal hysterectomy." Even if Richelot were right in looking on the hypertrophy of the endometrium due to the presence of fibroids as an early stage of carcinoma, excision of the cervical endometrium or thorough cauterisation would do away with any danger in leaving the cervix behind.

HENRY RUSSELL ANDREWS.

Sterility in Women. Treatment of Orificial Atresia of the Cervix Uteri.

Doléris (J. A.). *La Gynécologie*, December, 1903.

In cases of sterility, whether the cervix be conical, tapering with elongation of the anterior lip, or normal in shape, there is often found ectropion of the cervical mucous membrane surrounding the external os. Menstrual blood can escape without difficulty, but entrance of semen is difficult if not impossible on account of the swollen mucous membrane occluding the external os. On the other hand there may not be ectropion but the opposite condition, viz., entropion. Here the stratified squamous epithelium of the vaginal portion has penetrated into the cervical canal for a distance of some millimetres. This is sometimes the result of treatment of ectropion by caustics. In these cases dilatation of the cervix is good treatment as regards the internal os, and has a good effect as a gymnastic exercise for the uterus, but its effect on the external os is nil. Bilateral incision gives good results in some cases but often fails. In the unsuccessful cases examination reveals a cervix with a large transverse orifice, a cervix which is apparently what would be considered normal in a multipara. On careful examination, however, it is found that although the lips of the cervix can easily be separated there is an ingrowth of squamous epithelium on their inner surface, an entropion. This condition is almost as bad as atresia. The spermatozoa ought normally to find a fringe of ciliated epithelium just inside the external os, and the absence of this ciliated epithelium is probably a serious hindrance to conception.

Some surgeons divide the vaginal portion right up to the level of the vaginal insertion. The result of this is a cervix which gapes like a duck's beak, with a large double ectropion, not a condition favourable to conception. Doléris quotes an American story of two gynæcologists, one of whom spent his time in repairing the cervices which had been opened by the other. Doléris himself prefers to excise a wedge-shaped portion of tissue 1½cm. long on each side of the external os, the apex of the wedge being deep, the base superficial. This can be done without an anæsthetic. Slight application of the thermocautery stops the bleeding. After being packed with gauze for 10 days to a fortnight the cervical canal remains open and gaping with no entropion, and no possibility of the sides again coming in contact with one another. If this operation fails he advises Simon's plastic operation, *i.e.*, a conical excision of the free edges of the lips of the cervix leaving a clear orifice covered internally by ciliated epithelium.

Henry Russell Andrews.

On Esthiomène.

DIENST. *Monats. für Geburts. und Gynäkol.* Bd. xix., Heft. 1.

THE patient who was the subject of this communication was 34 years old, and had been three times pregnant, the last being six years previously. The first two pregnancies terminated normally, but the last one ended in the premature expulsion of a seven months' macerated fœtus. There had been no menstruation since the pregnancy. During several months before admission to hospital the urine had been constantly dripping away, and slimy stools were more or less constantly passing from the rectum, there having been a serious perineal laceration at the first labour. On examination of the genital system it was seen that the vaginal inlet was surrounded by polypoid and cock's comb-like outgrowths of gristly hardness, reaching as far as the anal orifice. There was no perineum but only a small amount of scar tissue between the vaginal entrance and the anus. These polypoid structures were also to be found 1½cm. up the vagina and 7cm. up the rectum. In the latter, 7cm. from the anus, the finger could just enter a circular stricture, very hard to the touch and immovable. Between and among the above mentioned excrescences were to be seen scars, as of old healed ulcers, and just below the urethral orifice were two fresh sharp-walled ulcers, with steep undermined and much infiltrated edges. In the middle of the anterior vaginal wall was a fistulous communication with the bladder, whose edges too were hard and much indurated. Microscopically one of the excrescences showed much thickening of the epidermis, dilated lymphatics and capillaries, arteries with thickened middle and internal coats and thrombosis of some of the vessels. No caseation or giant cells were to be seen. This series of pathological changes presents a picture which has been described by Gebhard as typical of the disease which is known as ulcus rodens or ulcus chronicum or in France as esthiomène. However, the same appearances are sometimes associated with syphilis, tubercle and a form of diffuse carcinoma, and it has been asserted that esthiomène is really a disease started by syphilis. Now, in the present case, although the patient had had a macerated fœtus which is in favour of syphilis, she had never had any rash, and a prolonged thorough course of antisyphilitic treatment had no effect whatever on the disease. Tuberculin, too, was administered without the least effect, and the microscope showed that the disease was not carcinoma. Therefore, it would appear that this case really was one which could be accepted as esthiomène, in Gebhard's sense, *i.e.*, a disease unconnected with syphilis, tubercle or carcinoma.

The pathology of the condition is exceedingly obscure, but

viewed generally it can be seen at once that the lesions are practically those of elephantiasis, namely, dilated lymphatics and blood-vessels with correspondingly ill-nourished connective tissues probably due to some form of chronic irritation. Experimental obliteration of lymph channels does not give rise to œdema as Cohnheim showed, because the blood-vessels, if normal, could take on the work of the lymphatics. But here there was not only a blockage of lymphatics caused by the rectal stricture and its surrounding infiltration, but also an interference with the blood supply as shown by the pathologically constricted arteries. As to the origin of the stricture, syphilis seemed to be non-existent, but gonorrhœa could not be excluded as the patient was of the prostitute class. The author described a stricture of the rectum which he had seen and which was apparently caused by gonorrhœa. The origin of the vesico-vaginal fistula appears to be connected with the ulcerative process so easily set up in a case of this kind. Any slight traumatism to a tissue already badly nourished, as in this case, would speedily lead to ulceration, and the constant passage of urine into such ulcers and its decomposition would no doubt lead to a necrotic change which eventually would open the bladder. The undermining of the edges of these ulcers no doubt would be due to infiltration with urine. In such a case the prognosis is much worse than where syphilis can be shown to be the immediate exciting cause, for antisyphilitic remedies would probably do good in the latter case. As to treatment, the first efforts must be made to close the fistula so as to prevent further urinary extravasation. Next the new growths must be removed and the perineum repaired, so as to prevent the passage of fæces over the external genitals. Even then the primary cause will not be relieved unless something can be done for the rectal stricture so as to promote the circulation and so get rid of the cause of the elephantiasis. This disease is an extremely interesting one, much controversy has raged around it, and the present communication may be safely taken as a very important addition to our knowledge of the subject.

THOS. G. STEVENS.

A Variety of Hypertrophic Non-ulcerating Tuberculosis of the Vulva.

PETIT and BENDER. *Rev. de Gynécol. et de Chirur. Abd.* November-December, 1903. No. 6.

THE authors consider that tuberculosis of the vulva is not so rare as was at one time thought. A patient, æt. 30, complained of swelling of the vulva. She had been pregnant three times, had miscarried twice, and had been confined at term two months before

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admission to hospital. During all her pregnancies the menstrual periods had continued to occur regularly. During the first pregnancy, seven years previously, general swelling of the vulva was noticed and this condition had gradually increased. During the last pregnancy the swelling had rapidly increased and "vegetations" had appeared.

The labia majora were greatly enlarged and seemed to be affected with a sort of "hard œdema." The other tissues of the vulva—labia minora, prepuce of the clitoris, urethral orifice, carunculæ myrtiformes—were converted into a "vegetating tissue." There was no trace of ulceration. The internal organs were healthy and the only symptom complained of was frequent and involuntary micturition. All the affected tissues were freely removed and their microscopic examination resulted in the discovery of numerous typical tubercular foci, which contained tubercle bacilli. The authors consider that this and another similar case reported by Poeverlein ("Ein Fall von Tuberkulose der Vulva," *Inaug. Diss.*, Munich, 1902) are the only instances of non-ulcerating tuberculosis of the vulva recorded.

G. Drummond Robinson.

Ætiology, Symptomatology and Treatment of Extra-uterine Pregnancy.

Runge. *Archiv für Gynäkol.*, 1903. Bd. lxx., Ht. 3.

This is a clinical study of 233 cases, and consists largely of figures. The writer considers that tubal pregnancy occurs principally in connection with lesions due to puerperal infection and to chronic gonorrhœa. Nulliparæ are by no means immune from the condition. A period of sterility usually precedes the conception.

Tubal abortion and rupture most frequently occur between the first and third months of pregnancy. In these cases operative treatment is only required under certain conditions, namely:—(1) When signs of continued life of the ovum are present; (2) when the tumour obviously continues to increase in size; (3) when the general condition changes for the worse or the tumour remains unabsorbed; and (4) when there is prolonged rise of temperature. The best operative route in tubal rupture or abortion is abdominal section. Drainage of the peritoneal cavity is to be avoided if possible. The placenta and gestation sac are to be removed completely whenever this can be done. The blood clots found in the abdomen are only to be removed so far as this can be done with ease, given that they are not stinking or decomposed, in which case they must, of course, be removed. When the child is living it is not necessary to wait for the supposed end of pregnancy before interfering.

Hæmatoceles should be treated by conservative methods when possible. Operative interference should only be undertaken under special circumstances, and the route chosen should as a rule be through the posterior vaginal wall, abdominal section being reserved for cases in which the tumour is very large or the vagina very small. (The reader will be struck with the difference between the above dicta and the views of the numerous authorities who operate as soon as ectopic pregnancy is diagnosed).

Of the 73 cases of tubal abortion in those analysed, only 37 were operated upon; one patient died after operation.

Of 47 cases of rupture five recovered without operation and 11 died after operation.

Of 108 cases of hæmatocele 37 required operation. One patient died without operation, one after vaginal section, and one after abdominal section. These results show that the writer's views in favour of conservative treatment are not without foundation.

W. E. Fothergill.

To Operate or Not in Tubal Pregnancy and Hæmatocele.

Klein (G.). Munich Gynæcological Society. *Monats. für Geburts. und Gynäkol.*, Bd. xviii., Ht. 6.

The author takes exception to Veit's views on this subject, given at the Wurzburg Gynæcological Congress in 1903, which were briefly as follows:—"In extra-uterine pregnancy with living contents operation is indicated, generally for the removal of the sac; similarly, if the embryo is dead and still lies in the sac, operation is indicated. If, however, the embryo has been expelled from the sac (presumably into peritoneum or between the layers of the broad ligament) absorption may be awaited. Operation is only indicated in such a case if new important symptoms arise. In case of rupture into the peritoneal cavity operation is indicated if life is menaced, but not otherwise." Many are opposed to these views, and the author brings forward cases from his private practice which appear to be examples in which a waiting policy has been attended by a bad result. In eleven years the author treated 22 cases of tubal pregnancy. Of these the sac was removed in 15, and none of the cases which were operated upon in time died. Two of them were unconscious and highly anæmic when first seen, and died during the beginning of the operation. Of the seven cases not operated upon one died 12 hours after rupture while the instruments were being fetched. The three deaths were very instructive cases, and are briefly as follows:—

1. A three months tubal pregnancy ruptured at 5 a.m., was seen by a doctor at 7 a.m., who *determined to wait.* At 5 p.m. the author

saw the patient, who was then pulseless, and who died before the instruments could be fetched in spite of saline infusions and other treatment.

2. At the beginning of the second month of a tubal pregnancy, symptoms of faintness for some days before rupture; a second fainting attack 24 hours after partial recovery from the first attack. This patient was absolutely alone in her house, and neighbours sent for the doctor. When seen by the author in consultation the patient was unconscious, and died without narcosis just at the moment of opening the abdomen. This case could hardly have been saved as no doctor saw her in time, but the first case could certainly have been saved if operated on when first seen.

3. This case was one of hæmatocele-formation in a three months extra-uterine gestation. The waiting policy was adopted, and four days after the first onset signs of secondary bleeding into the hæmatocele showed themselves, and the pulse became bad. The patient was brought into hospital and carefully watched for any further serious symptoms. On the fifth day the pulse became suddenly bad, the patient was removed to the operating theatre, but died while the abdomen was being opened. Fresh arterial blood was found in the centre of the hæmatocele around the ruptured tube. This patient died, in spite of an encapsuled hæmatocele, from two secondary hæmorrhages.

A fourth case mentioned by the author, shows the value of an operation in a case such as No. 3, although at a later date. A hæmatocele had formed and several secondary hæmorrhages had occurred, but no sufficiently serious symptoms had shown themselves. However, on the 31st day after rupture the pulse suddenly failed, and an operation was at once performed. Fresh bleeding into the centre of the hæmatocele was found, and the capsule had burst at one place, allowing fresh blood to escape into the peritoneum. After extirpation of the sac and hæmatocele the patient completely recovered.

The first two cases show that an operation must be immediately performed if the pulse is failing, and one must not wait to determine whether the fœtus is dead or not. On the other hand, where an encapsulated hæmatocele has formed, as a rule it is good practice to wait; still cases 3 and 4 show that even in such cases a fatal result may ensue from secondary hæmorrhage. The danger of operating too late is much greater than that of operating too early.

In a discussion on this subject Seitz mentioned the good effect of the injection of morphia into the sac in early extra-uterine pregnancies. This proceeding necessitates early diagnosis, which of course is not often possible, so few patients being seen before some sign of rupture has appeared. Gossmann also had had good results

from the injection of morphia into the sac, and on the whole was in favour of a waiting policy. In his opinion death from hæmorrhage was very rare, and he quoted Hofmann, of Vienna, who had only seen eight cases in twelve years in spite of his large experience. Operations performed by inexperienced men were of greater danger than a waiting policy, and even if a patient recovered after operation that is no argument that she would have died if not operated upon.

THOS. G. STEVENS.

On the Use of Dilute Caustic Soda Solutions for the Purpose of Softening the Hands before taking Cultures.

FUETH. *Monats. für Geburts. und Gynäkol.* Bd. xviii., Ht. 6.

KNOWING the effect of sulphuret of soda (Na_2S) on the epidermis (producing swelling, softening and apparently loosening of the keratin holding substance) the author made use of various strengths of this substance in solution before taking cultures from the hands after disinfection. In spite of the use of this method, hands infected with a virulent tetragenus, still contained sufficient bacteria to kill mice, when the cultures were injected into the peritoneum. The solution of sulphuret of soda contains really two substances, NaOH and NaSH (the result of the action of water on Na_2S), so it was concluded that the effect on the skin was probably produced by the caustic soda so produced. Working on this hypothesis the author used next a 0·6 per cent. solution of caustic soda after the hot water and alcohol disinfection method and took cultures. The first three plates were taken from the palm, and the second three from the nail region by rubbing with sterile wooden tooth-picks and placing them in melted agar. These six plates were inoculated *before* the use of the 0·6 per cent. NaOH solution. Then the soda solution was used for five minutes, the hands became softened and swollen, and were then washed with sterile running water until no more epithelium came away. Now further cultures were taken, Plates 7 to 9, from the palm, and 10 to 12 from the nail region. As a result the first six plates (no soda used) gave plenty of colonies, the two plates, 7 and 8 (after soda was used), gave two and one colonies. The last four plates, 9 to 12, remained absolutely sterile. Thus it seemed that a 0·6 per cent. NaOH solution softened and brought away all superficial epithelium and killed any bacteria remaining. The result, however, for the hands was serious, as an acute eczema appeared, which lasted several days. The same kind of experiment was tried simply with cultures. An agar tube was inoculated with the yellow air bacillus, another similarly inoculated had 2ccm. of 0·6 per cent. NaOH solution mixed with it and another had 2ccm. of 0·1 per cent. NaOH solution

mixed with it. The first grew large numbers of colonies, the second none at all, the third grew like the first. In other words, the 0·6 per cent. NaOH solution either killed or prevented the growth of the bacteria even after eight days incubation, but 0·1 per cent. NaOH had no effect. On these grounds the author concludes that a weak solution of caustic soda may be used merely as a softening agent, but has no effect on the results of cultures.

THOS. G. STEVENS.

A Contribution Concerning Hand Disinfection.

FUETH and MOHAUPT. *Monats. für Geburts. und Gynäkol.* Bd. xviii., Heft. 6.

SINCE Ahlfeld first brought forward his hot water and alcohol method of hand disinfection much has been written on the subject, papers by Hägler, Paul and Sarwey, Engel and Schäffer being of especial interest and importance. Ahlfeld puts his views forward with the greatest enthusiasm, and states that the hands can be made sterile by this means. Hägler, Paul and Sarwey, and Schäffer are all of the opposite opinion, their experiments all showing that the hands are not sterile, and that colonies of bacteria can be grown from the hands after this method of disinfection. Schäffer comes to the conclusion that it is not possible thus to make the hands sterile (Keimfrei), but only to make them so that very few bacteria can be grown from them (Keimarm). Lauenstein has contributed a paper in support of Ahlfeld's method (*Monats. für Geburts. und Gynäkol.*, 1902, Bd. xvi.) from the clinical aspect. He operated upon a case of virulent cellulitis of the leg and immediately afterwards, having disinfected his hands by Ahlfeld's method opened an abdomen for intestinal obstruction. Although his own finger was infected from the first case (and gave streptococci in culture), yet the second case ran an aseptic course, which Lauenstein considers an important practical proof of the efficacy of Ahlfeld's method. It is not possible to come to such a conclusion from the result of a single case, especially as that was an abdominal operation. Unless the hands can be shown by experiment to be absolutely sterile the chance of wound infection must always be present. The present authors, in particular, criticise Schäffer's methods of experiment chiefly with regard to the normal bacteria found on hands, the choice of the infecting organism used for experiment, the use of sand for rubbing the bacteria off the hands and the time the experiments took to complete. The method of carrying out the experiments by the authors was briefly as follows:—The hands used for experiment had not been in contact with corrosive sublimate for 36 hours. The

hands were artificially infected with the same yellow air organism which Schäffer used (the culture was obtained from Schäffer). A four days old culture with 5ccm. of sterile water was rubbed into the hands for five minutes, and then the hands were allowed to dry for 35 to 40 minutes, sometimes in sterile gloves sometimes without. Next followed the scrubbing in hot water in two basins, three minutes in the first, two minutes in the second with a sterile brush and soft soap. (All basins and articles used being sterilised by steam.) The water was used at a temperature of 50 degrees for nearly all the experiments. After washing off all soap with sterile water came the alcohol disinfection. Two basins of 96 per cent. alcohol were used, the first one four minutes scrubbing and the second one minute scrubbing with a sterile brush. Washing off all alcohol and soaking the hands in sterile water for 15 minutes was followed by a further softening by five to seven minutes soaking in 1 per cent. caustic soda solution. The cultures were taken from the hands thus prepared by rubbing the hands (still wet from the ·1 per cent. caustic soda solution) with sterile marble sand. A pinch of sand was used at a time and after rubbing all over was allowed to fall into Petri dishes, 30 in all being used for each experiment. Finally melted agar culture medium was poured into each dish and gently agitated so as to mix with the sand. The dishes were then covered, packed in black cloth bags and put into the incubator. Out of 300 plates thus made in 10 experiments 53 were discarded, and of the remaining 247 on an average 50 colonies were found in each. Only the golden yellow bacillus colonies being counted, though there were some few others white and grey in appearance. The highest average number in any one experiment was 114 and the lowest was nine. In the latter experiment, however, it was found that the skin still contained traces of mercurial salts. From these results the authors conclude that this very searching method of disinfection does not even make the hands poor in bacteria in Schäffer's sense.

THOS. G. STEVENS.

Obituary.

Dr. R. MILNE MURRAY.

It is with feelings of the deepest regret that we record the death of Dr. R. Milne Murray, which occurred in Edinburgh on the 14th inst. For the last fifteen months he had been laid aside from active work through contracting a chill from which some pulmonary affection developed, but hopes were fondly cherished till the last that he would ultimately recover. These, alas, have been rudely shattered, and we now mourn the loss of one of our most eminent obstetricians, deplored not only by the Edinburgh School with which he was particularly connected, but by the country at large. Though but 48 years of age he had, by the application of science to obstetrics, made a reputation which reflected credit not only upon himself, but made him an ornament to the school in which he laboured and to which he belonged.

Robert Milne Murray was born at Fettercairn, Kincardineshire, the son of a gifted schoolmaster. From his father's school he went to St. Andrews, where he graduated M.A. in 1875. During his undergraduate career in this University he was the valued assistant of Dr. Heddle, professor of chemistry, which marked the early bent of his scientific instincts. After graduating in medicine at Edinburgh University, he became assistant to Sir J. Halliday Croom, which laid the foundation of his future obstetric career. During this time he supplemented practice by coaching in chemistry most successfully, and thus gained the experience in teaching which made him such a lucid and popular lecturer in midwifery and gynæcology in the Edinburgh School of Medicine, his classes being attended by large numbers of students.

To one of Dr. Murray's original mind and scientific genius obstetrics offered a far too limited scope, and, great as his attainments in this branch were, it was as an electrician, physicist, and physiologist that he particularly shone. There are few who were his superiors and collectively probably none his equal in these departments.

His electrical laboratory, in which the apparatus was almost all devised by himself, was one of the finest in the kingdom, and had been visited by scientists from all parts of the globe. In his application of these sciences to obstetrics the main value of Dr. Murray's work lay. Thus his experiments on the action of hot water on unstriped

R. MILNE MURRAY.

muscle placed on a scientific basis the particular benefit of hot water injections in post-partum hæmorrhage. In a similar way his scientific solution of the electrical treatment of fibroids at once raised this method from the depths of quackery with which it was too apt to be classed.

His scientific demonstrations of the physics of axis traction forceps have gone far to place the instrument in the foremost place it now holds. In this subject he was specially interested and, as if to show his keenness thereon to the last, a trenchant criticism by him on a review of this subject appeared in the *British Medical Journal* of February 6th.

His papers are numerous and varied, all are stamped with the accuracy and breadth of grasp of the true scientist.

He has been President of the Edinburgh Obstetrical Society, Vice-President of the British Gynæcological Society, and has held many other honorary positions. As Physician to the Maternity Hospital, Edinburgh, and assistant Gynæcologist to the Royal Infirmary, his teaching abilities were greatly prized and will be sadly missed.

Generous and unselfish almost to a fault, genial, unassuming and sympathetic, he was loved by all with whom he came in contact. His patients practically worshipped him, his associates revered and adored him. Busy as was his life, time was always his to bestow in assisting others when it was required. Of jealousy he knew nothing and seemed to have the special knack of seeing only the good points in the characters of others. For one of such strong character and outspoken independence it is strange to believe that he had no enemies, but such was so. Kindness and firmness, strength and gentleness seemed interwoven in one priceless fabric.

That such a beautiful and valuable life should thus early be removed from us cannot but make one halt and wonder at the strange mysteries of our destiny. But, while deeply mourning his loss, those who personally knew him cannot but be thankful for the stimulating influence of his life, his example, and his friendship.

REPORTS OF SOCIETIES.

OBSTETRICAL SOCIETY OF LONDON.

Meeting, Wednesday, February 3rd, 1904, EDWARD MALINS, M.D., *President, in the Chair.*

Mrs. SCHARLIEB showed a specimen of UNRUPTURED TUBAL GESTATION. This was removed from a vi.-para, aged 30, who was quite well and regular up to July, 1903. At that time, during what appeared to be a normal period, she had an attack of severe pain, which lasted three or four hours. During the next three days the patient felt ill and vomited frequently. From July to October there was constant, but not profuse, hæmorrhage, unaccompanied by pain. *On examination* a smooth, globular tumour, about the size of a billiard ball, was found close to the uterus, but separate from it. Diagnosis lay between a tubal gestation and a small ovarian cyst. The patient underwent operation on October 29th, 1903. A spherical dilatation of the inner third of the right Fallopian tube was found. The bladder was adherent to its anterior surface, and coils of intestine to the posterior. There was no paratubal hæmorrhage. The specimen consisted of the right Fallopian tube and ovary. The outer two-thirds of the tube were normal with a patent ostium abdominale. A probe could be passed down the tube, but did not enter the swelling. The globular portion consisted of the dilated tube, containing blood clot permeated by degenerated chorionic villi. In the centre was a smooth cavity lined by the amnion, and containing a perfect embryo of 24 to 28 days development. The umbilical vesicle was a prominent object. It is probable that the hæmorrhage occurred when the patient experienced the severe pain in July. No decidua was expelled from the uterus before or after operation.

Dr. CULLINGWORTH said that the number of cases of tubal gestation operated upon before rupture, though increasing, was still so small that it was most desirable that every case should be placed on record. Mrs. Scharlieb's specimen was very beautifully preserved and mounted. Under any circumstances, the diagnosis of unruptured tubal pregnancy was attended with much difficulty, but the difficulty was much increased when, as in the present case, the gestation was too early for there to be a history of missed menstruation. Under such circumstances, a certain diagnosis must be almost impossible. He understood Mrs. Scharlieb to describe an outer peritoneal covering of the affected portion of the tube, and beneath that the muscular layer of the tube wall, covering a quantity of blood clot, with which damaged chorionic villi were irregularly mixed up. He wished to ask Mrs. Scharlieb whether there was any evidence of the chorionic villi having invaded the muscular coat, and also whether her examination of the specimen could throw any light upon the question as to whether the ovum in tubal gestation is or is not outside the lumen of the tube.

Mr. ALBAN DORAN believed, that as a large number of tubal abortions were known to occur about the second month, it was highly probable that a still larger proportion of tubal pregnancies terminated even earlier and without symptoms. Perhaps, however, this was not the case, the

tube being competent to bear an ovum until it attained a certain size. Much was known about the early stages of tubal gestation, but its clinical features required more study. The discharge of dark blood known to older writers, but not accurately interpreted by them, had been correctly indicated as a cardinal symptom by Dr. Cullingworth. Pain, associated with a pelvic swelling and disturbance of the catamenia, was sometimes absent, hæmorrhages probably never.

Dr. ETHEL VAUGHAN also discussed the case.

Dr. BLACKER showed an interesting specimen of DECIDUOMA MALIGNUM, and Dr. BRIGGS one of PRIMARY CARCINOMA OF THE FALLOPIAN TUBE. The latter specimen was discussed by Mr. ALBAN DORAN and Dr. HEYWOOD SMITH.

After the Reports of the Treasurer, the Honorary Librarian, and the Chairman of the Board for the Examination of Midwives had been read and adopted, the President, Dr. Edward Malins, delivered the annual Address.

Dr. Pozzi and Sir John Williams were elected Honorary Fellows of the Society.

The following list of Officers and Council for the ensuing year was announced, and the proceedings closed with votes of thanks to the retiring Officers and Members of the Council:—

President: Edward Malins, M.D.

Vice-Presidents: A. H. Freeland Barbour, M.D. (Edinburgh), Amand Routh, M.D., B.S., William Japp Sinclair, M.D. (Manchester), Herbert R. Spencer, M.D.

Treasurer: George Ernest Herman, M.D.

Chairman of the Board for the Examination of Midwives: W. R. Dakin, M.D.

Editor of the "Transactions": Herbert R. Spencer, M.D.

Honorary Secretaries: Montagu Handfield-Jones, M.D., Robert Boxall, M.D.

Honorary Librarian: Arthur H. N. Lewers, M.D.

Other Members of Council: Sydney Beauchamp, M.B., B.C., John M. Biggs, Albert Charles Butler-Smythe, Murdoch Cameron, M.D. (Glasgow), Charles James Cullingworth, M.D., Ernest Rumley Dawson, John Henry Ewart (Eastbourne), John Shields Fairbairn, M.D., B.Ch., Charles Arthur Goullet, David Berry Hart, M.D. (Edinburgh), Arthur Corrie Keep, M.D., C.M. (Edinburgh), Arnold W. W. Lea, M.D. (Manchester), Cuthbert Lockyer, M.D., B.S., William Rivers Pollock, M.B., B.C., Harry Campbell Pope, M.D., Edward Reynolds Ray, Walter C. Swayne, M.D. (Bristol), Charles J. Wright (Leeds).

BRITISH GYNÆCOLOGICAL SOCIETY.

Meeting, February 11th, 1904, PROF. JOHN W. TAYLOR, *President, in the Chair.*

Dr. WILLIAM DUNCAN read notes on a case of EARLY RUPTURE OF A TUBAL GESTATION, and, with the epidiascope, illustrated the mode of the embedding of the ovum by microscopical sections which showed that the gestation sac was separated from the lumen of the tube by muscular tissue. Dr. MACNAUGHTON-JONES read a final report on a case of TUBAL GESTATION; after discussion, in which the PRESIDENT, Dr. J. J. MACAN, Dr. HERBERT

Snow, Mr. W. D. Spanton, Mr. Christopher Martin and Dr. H. C. Pope took part, Dr. Duncan explained his preference for suture of the abdominal wound in layers, which under ordinary circumstances did not take more than a couple of minutes, and pointed out that the ovum not merely found its way into the musculosa of the tube but its port of entry completely closed up behind it.

Dr. Macnaughton-Jones showed an aseptic cap for the mouth and nose supported on a spectacle frame and devised by himself, which he thought equally effective and less cumbersome than others recommended; he read notes of a case of general Vesicular Eruption following a Dressing of Iodoform, and pointed out that an idiosyncrasy against that drug might exist and should be ascertained.

Dr. Herbert Snow read notes of a case of a Cyst Simulating Femoral Hernia, and Mr. W. D. Spanton a short communication on Woollen Fibres as a Cause of Bladder Irritation in Girls, relating three cases in which such trouble had been due to the wearing of coarse woollen undergarments, the fibres of which were detected in the urine.

The President, after thanking Dr. Snow and Mr. Spanton for their interesting communications, proceeded to read his inaugural address on The Diminishing Birthrate, which, he said, in the last 25 years had fallen from 34·3 to 28 per cent. in the United Kingdom. The rate was declining in the colonies also and in Australia had dropped from 37 per thousand to 27·35, which was even lower than at home. In Russia and Japan the rate had risen, but it had fallen in the United States and in most European countries; broadly speaking, it was falling in the West and rising in the East. Nowhere, however, during the last 20 years had the birth loss been so great as in the United Kingdom where it amounted to 15 per cent. of the legitimate increase, or for England and Wales alone to 17 per cent. In London alone the deficiency had been estimated at 26,000 per annum. Moreover, in regard to juvenile criminality, mental disease and alcoholism the restricted population of the present day compared unfavourably with former generations, and the fact must be faced that either modern marriages, generally, are relatively unfertile and the children are deteriorated, or that those of the middle and better classes are so sterile that quite an undue proportion of the rising generation spring from the lower, more ignorant, more vicious anl semi-criminal population. Now, as the marriage rate had not decreased, had indeed in the last ten years slightly increased, and as the elevation of the age of marriage had a very limited effect upon fertility, the birth loss in the United Kingdom must be attributed to causes operating in the married life of its inhabitants, and the main cause, as all gynæcologists know, was the deliberate prevention of conception. The outcome for the nation might be deduced from the condition of things in France as described by Frenchmen for Frenchmen. In that country, though the population had hardly increased in the last 50 years, criminality had trebled, suicide, especially among young people, had become five times as common, and the country had passed from the seventh to the first place in the consumption of alcohol *per capita*. In combating the impending evil all should help; every philanthropist should accept the highest standard put forward for sexual morality by any religious community and the State should recognise the services of those who brought up large families to be good citizens, and members of the medical profession were especially responsible for the good that might be done by their personal influence and example, for they could not but be aware that the evil effects of measures to prevent

conception affected not only husband and wife but were visited upon their limited offspring, and that to the artificial check on fertility was due not merely a diminished birth-rate but an increasing deterioration in our population. No means of artificial prevention were innocuous, and, in his own opinion, none should be countenanced save operative interference in case of deformity or grave disease.

On the motion of Dr. HEYWOOD SMITH, seconded by Dr. MACNAUGHTON JONES, the thanks of the Society were voted to the President, by acclamation, for his admirable address.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Annual Meeting at Manchester, Friday, January 15th, 1904, Dr. J. E. GEMMELL, *President, in the Chair.*

The following were elected office-bearers for 1904:—

President: W. J. Sinclair, M.D. (Manchester).

Vice-Presidents: S. Buckley, M.D., W. Walter, M.D. (Manchester), H. Briggs, F.R.C.S., T. B. Grimsdale, M.B. (Liverpool), J. B. Hellier, M.D., A. C. F. Rabagliati, M.D. (Leeds), Sinclair White, M.D., Richard Favell, M.R.C.S. (Sheffield).

Council: W. E. Fothergill, M.D., A. T. Helme, M.D., A. Hopkinson, M.B., S. Nesfield, M.D., D. Lloyd Roberts, M.D., J. P. Stallard, M.D., J. M. H. Martin, M.D. (Manchester), J. E. Gemmell, M.B., E. T. Davies, M.D., P. Edwards, L.R.C.P., R. Humphreys, M.B., J. McClelland, M.D., A. M. Patterson, M.D., J. N. Cregeen, M.D. (Liverpool), J. Braithwaite, M.D., C. Richardson, M.R.C.S., C. J. Wright, M.R.C.S., A. E. L. Wear, M.D. (Leeds), Percival E. Barber, M.R.C.S., J. W. Martin, M.D., Robert Gordon, M.D. (Sheffield).

Honorary Treasurer: E. Octavius Croft, M.D., 33, Park Place, Leeds.

Honorary General Secretary: Arthur J. Wallace, M.D., 1, Gambier Terrace, Liverpool.

Honorary Local Secretaries: John Scott, M.D., 249, Upper Brook Street, Manchester; A. Stookes, M.B., 78, Rodney Street, Liverpool; Walter Thompson, F.R.C.S., 4, Park Square, Leeds; Sidney Barber, M.R.C.S., 11, St. Barnabas Road, Highfield, Sheffield.

On the conclusion of the annual Business, Dr. A. STOOKES (Liverpool) read notes of a case of ECLAMPSIA WITH FATAL RESULT. The patient was a healthy-looking, well-developed primipara, aged 28, and on admission presented signs of slight general œdema. Four convulsions had occurred before admission, and on examination the cervix was found to be fully dilated, the head presenting in the first position and lying well in the pelvic cavity. Forceps were applied and delivery effected with ease, and without the occurrence of further fits. Subsequently 12 fits occurred. The bowel was washed out with hot saline solution, its contents being very offensive. Bromide of potash and chloral were administered per rectum, and during the night saline injections with smaller doses of the drugs were given every two hours. Hot packing was also used. Soon after admission eight ounces of cloudy urine were drawn off and at 9-30 next morning nearly 20 ounces were again drawn off. Its sp. gr. was 1,022, and it contained casts and half albumin. On the morning after delivery

the temperature rose to 105, and death occurred at 10-30, while the nurse was in the ward. The post-mortem revealed changes too slight to account for death.

Dr. E. O. Croft (Leeds) said that the sudden death when the eclamptic condition was apparently passing off suggested a cause dependent on some complication. He mentioned a case in which, under similar circumstances, the patient died from apoplexy, a recent cerebral hæmorrhage being found at the autopsy.

Dr. Nesfield (Manchester) thought that eclampsia occurred much less frequently now than in past years. He mentioned a case in which the desperate state of the patient compelled him to resort to craniotomy with subsequent delivery by the crotchet. She recovered and afterwards bore three healthy children.

Dr. J. E. Garner (Preston) thought it was not always advisable to effect delivery by mechanical means, and mentioned cases in which by means of palliative measures labour had terminated naturally and safely. He knew of no pathognomonic symptom to guide one in deciding when to wait and when proceed to end labour.

The President inquired whether notes of the pulse had been taken from the first. In the matter of prognosis its condition was of great importance.

Drs. H. Briggs and J. W. Martin having spoken, Dr. Stookes said, in reply, that the pulse was watched very carefully by the house-surgeon, who was struck by its rapidity. It was never below 140 during the intervals between the attacks. Deep coma persisted throughout until the end, death being probably due to heart failure.

Dr. A. Donald (Manchester) read a paper on Chronic Endometritis and Chronic Metritis in Virgins. He dealt with affections of the endometrium and mesometrium occurring apart from the usual infective causes (sepsis, gonorrhœa, etc.). The paper was based on a series of 40 cases which had been carefully observed. Attention was specially directed to one group of cases, which were characterised by the association of these three conditions:—(1) Small or infantile cervix; (2) acute flexion, forwards or backwards; (3) enlargement of the uterine body. The symptoms in these cases were, in the order of frequency:—(1) Pain or dragging sensation in one or both iliac regions, or pain generally in the lower zone of the abdomen (in 36 out of 40 cases); (2) dysmenorrhœa (in 33 out of 40 cases); (3) leucorrhœa (in 31 out of 40 cases); (4) menorrhagia or metrorrhagia (in 16 out of 40 cases); and (5) remote or nervous symptoms. In a large proportion of the cases the uterine mucosa was much thickened. The uterine cavity showed an increase in length of from $\frac{1}{4}$in. to $1\frac{3}{4}$in., and the mesometrium was sometimes considerably thickened. Microscopic examination of the mucous membrane removed showed great increase in glands or in inter-glandular stroma or both. Remarks were made as to the etiology and treatment of the condition. The paper was illustrated by microscopic specimens and micro-photographs. Dr. W. E. Fothergill (Manchester) contributed a pathological report on these specimens.

Dr. Lloyd Roberts (Manchester) thought that the important condition in these cases was stenosis of the cervix, a condition which was very often present. The best treatment for the dysmenorrhœa lay in curetting followed by the application of the linimentum iodi.

Dr. Arnold Lea (Manchester) remarked that the cases described did not appear to manifest any signs of infection of the uterus, and he,

therefore, doubted whether the name metritis was a satisfactory one, as the condition really appeared to be one of hyperplasia of the uterine mucous membrane. He inquired whether Dr. Donald had been able to associate the condition with any special diathesis, or if he could bring forward any ætiological factors.

Dr. W. E. FOTHERGILL (Manchester) thought it doubtful whether any inflammatory condition existed in these cases. Hypertrophy of the mucosa certainly did exist, and also hypertrophy of the connective tissue of the wall of the uterus. He suggested that both hypertrophies might be secondary to an alteration in the vascular relations of the uterus, and thought that the work of Theilhaber and Meier supported this view.

Mr. RICHARDSON (Leeds) remarked upon the undue proportion of teachers in elementary schools whom he had found to be suffering from this condition. He thought this was due to the strain of pupillage and study for examinations at the time of development into womanhood. Probably the recent fashion of athletics for girls in schools and colleges would tend to prevent this class of disease.

The PRESIDENT and Dr. STOOKES having spoken, Dr. DONALD briefly replied.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Meeting, February 3rd, 1904, DR. NIGEL STARK, *President, in the Chair.*

Dr. MUNRO KERR showed (*a*) A LARGE MYOMATOUS UTERUS removed by supra-vaginal amputation on account of hæmorrhage and discomfort; (*b*) AN ECTOPIC SAC containing a fœtus of about three months.

Dr. SAMUEL SLOAN read a note on THREE CASES OF CANCER TREATED BY THE X-RAYS.

1. *Vaginal cancer.* Bleeding ceased and pain was diminished but the size of the growth was not influenced.

2. *Cancer of the right breast with destruction of the breast tissue, involvement of the axillary glands and swelling of the arm.* Under the influence of the X-rays the ulcerated surface healed over, but the malignant tissue in the breast and the axillary glands remained as before treatment. When treatment was stopped ulceration began again.

3. *Cancer of the cæcum.* Three applications were made and each was followed by great pain.

Dr. A. LOUISE MCILROY read a paper on SOME PATHOLOGICAL CONDITION OF THE FALLOPIAN TUBES. Dr. McIlroy grouped the cases into three classes:—(1) Hydrosalpinx; (2) Hæmatosalpinx; (3) Tubal gestation.

1. *Hydrosalpinx* was defined as a distension of the tube by watery fluid, caused in every case by an inflammation of the walls of the tube, *i.e.*, a salpingitis. It was rarely the result of a pyosalpinx, as most of the cases contained no evidence of pus formation, and no micro-organisms had been found. It might be secondary to hæmorrhage from a tubal pregnancy or the result of peritonitis sealing a healthy tube and causing retention of normal secretion.

CASE (A). *Left tube.* The dilated outer end of the tube formed a cyst the size of an orange. The cyst contained blood-stained fluid. The portion of the tube between the cyst and the uterus had twice undergone rotation. It was separated from the cyst by necrotic tissue, and in its middle third was filled with blood clot. Dr. McIlroy was of opinion that a hydrosalpinx had formed at the outer end of the tube, and that, at a later stage, torsion of the inner portion had taken place. The parovarium and ovary were distinct from the other structures.

2. *Hæmatosalpinx.* Dr. McIlroy discussed the causation and showed: (*a*) A tube containing blood. There was nothing to suggest pregnancy. The blood was probably the result of an acute inflammation of the tube. (*b*) Two tubes from the same patient. There was no evidence of pregnancy in either of them. The uterus was myomatous. The hæmorrhagic condition was believed to be the result of pressure from the enlarged uterus.

3. *Tubal gestation.* In illustration the following cases were shown:— (*a*) Incomplete tubal abortion with hæmatocele. (*b*) Incomplete tubal abortion. The non-pregnant tube of the opposite side was distended with blood. (*c*) Tube enclosing fœtus. Rupture had taken place into the broad ligament. (*d*) Unruptured tubal pregnancy.

EDINBURGH OBSTETRICAL SOCIETY.

Meeting, February 10th, 1904, Dr. BREWIS, *President, in the Chair.*

Dr. HAULTAIN showed—(1) Uterus with large adherent ovarian tumour, removed from a woman æt. 70. (2) Adeno-carcinoma of the uterus, removed from a patient æt. 25. The uterus had been curetted three times before he saw her, and he did it twice. Still hæmorrhage recurred so that the patient became very anæmic, and he was obliged to remove the uterus. On microscopic examination there proved to be a deep penetration of the muscular wall by the glands of the endometrium at one part. (3) Fibro-myomatous uterus with adeno-carcinoma and double ovarian tumours; interesting because of the variety of growths present. (4) Fibro-myomatous uterus and solid ovarian tumour, a form of tumour not yet understood, pathologically malignant, clinically benign. (5) Large fibro-myomatous uterus, removed for reflex laryngismus stridulus, with resulting cure. The tumour itself gave rise to no local symptoms. (6) Uterus with large cervical fibroid growing from the posterior wall. (7) Solid tumour of the uterus showing telangiectatic cavities.

Prof. SIMPSON showed—(*a*) Fibroid tumour showing calcareous degeneration. In the centre of one of the myomatous masses fatty degeneration was going on. There were also some cystic cavities with epithelial lining. (*b*) Fallopian tubes showing salpingitis.

Dr. LACKIE showed—(1) An interstitial fibroid, removed on account of severe pressure symptoms; (2) a blighted ovum. The amniotic sac was complete, but there was no trace of an embryo. The patient, æt. 47, was nine weeks pregnant, and the ovum had at first sight the usual appearances of a two months' abortion.

The PRESIDENT showed—(1) Large pyonephrosis; (2) tuberculous kidney and ureter; (3) two tumours of the suprarenal capsules; (4) two tumours of the round ligament; (5) fibroid tumour of the vagina; (6) various ovarian and uterine tumours.

Dr. BERRY HART read a "NOTE ON A CASE OF HEBOTOMY (Lateral Section of the Pubes)." The patient, a ii.-para, had been delivered by craniotomy four years before. The operation of hebotomy was successfully carried out, but the patient died three days afterwards from the effects of chloroform, as demonstrated by post-mortem examination. The pelvis was a flat, non-rickety one. Dr. Hart described the steps of the operation, and contrasted it with symphyseotomy.

The PRESIDENT read a paper on "SOME RENAL CASES" and gave records of the most interesting cases of renal tumours he had dealt with. The specimens he had previously shown were used in illustration of his paper.

REVIEWS OF RECENT BOOKS.

TRANSACTIONS OF THE ROYAL ACADEMY OF MEDICINE IN IRELAND. Edited by John B. Story, M.B., F.R.C.S., General Secretary. Vol. xxi., with Index—Vol. i. to xx.—compiled by E. J. McWeeney, M.D. Dublin: Brown and Nolan Limited, and at Belfast and Cork, 1903.

The section of obstetrics includes contributions by Mr. E. H. Tweedy on operations for tubal disease, by Dr. A. J. Smith on a case of fibro-myoma, by Dr. Allworthy on supernumerary nipple, by Dr. Walker Cockle on eclampsia and post-mortem delivery by forceps, and, lastly, astray under the section of anatomy and physiology, a case of amenorrhœa by Dr. John Knott. The usual Rotunda Hospital Reports for the past twelve months are published here, both the Obstetrical and Gynæcological Statistics being compiled by Dr. Purefoy. Attention may be turned to Dr. A. J. Smith's "Notes on an interesting fibro-myoma." An extensive enucleation was necessary and the operator found that there was dangerous oozing from the raw surfaces, although the main arteries were controlled. He, therefore, packed the pelvis with sterilised gauze and brought the ends out through the abdominal incision. The results were quite satisfactory. There can be no doubt that drainage of a capsule is sometimes necessary and is followed by better after-results than when a large number of ligatures are left in the connective tissue of the pelvis. This question was discussed by Mr. Alban Doran in the third Harveian lecture on "Fibroids of the Uterus" in 1892. In Dr. Allworthy's case the supernumerary nipple was very well developed; it lay on the left breast about two and a half inches below the normal mamilla. The former nipple drained milk from the latter, to the inconvenience of the patient, hence there were not two separate and distinct portions of mammary gland for each nipple, the lactiferous ducts of the whole gland intercommunicating with both nipples. Dr. Cockle's post-mortem delivery case deserves perusal; he used forceps but could not revive the asphyxiated child; there had been, however, a little accidental delay of about two minutes after the mother's death. The relative merits of Cæsarean section and the forceps are discussed. In a case in which either method might be adopted Dr. Cockle prefers the forceps, for not only is instrumental delivery as rapid and sure an operation as Cæsarean section, but it is infinitely cleaner, since it is practically bloodless, and, besides, it leaves no disfigurement of the mother and is, therefore, less repugnant to the minds of the relatives, as well as to the operator himself. More especially would this be the case if the child has not survived, as then to the lay mind the operation might appear in the light of an experiment, and this last point is of no small importance, as the relatives are often the determining factor as to whether the doctor may interfere or not. Such is Dr. Cockle's opinion, and it is at least of some weight in private practice and in relation to well-known prejudices. We need hardly say that Dr. Purefoy maintains the excellence of the Clinical Reports of the Rotunda Hospital. We may note a case of acute yellow atrophy associated with pregnancy. A large vesicular mole was removed, the patient had already experienced one molar pregnancy and borne one living child. Death occurred shortly after

removal of the mole. The left kidney had two ureters which came off from distinct pelves and opened separately, about a quarter of an inch apart, but the abnormality did not contribute to the fatal result. Dr. Purefoy adds a case, by Major Giffard, I.M.S., of Bombay, of acute yellow atrophy in a Hindoo woman, aged 29, during her second pregnancy, and another where jaundice and grave diarrhœa were associated with pregnancy and labour. Delivery was spontaneous, but the patient died twelve hours later. Our readers will remember Lieut.-Colonel Sturmer's "Case of acute atrophy of the liver with jaundice" in this Journal, December, 1903, p. 555. The distinction between this disease and other forms of severe jaundice in pregnancy, especially in relation to malaria, is of much importance. Dr. Knott's case of suppression of menstruation after typhoid fever is rightly not called "precocious menopause," but the author says nothing about the high possibility of destruction of the essential elements of the ovaries by the acute oöphoritis occasionally observed in fevers. Hæmorrhages into the parenchyma, not rare in these fevers, are very destructive to function.

THE PRACTICE OF OBSTETRICS. By J. Clifton Edgar, Professor of Obstetrics, Cornell University. London: Rebman Ltd., 1903.

This large and handsomely bound book makes another addition to the long list of manuals on midwifery written by American authors. It is divided into ten parts and a short appendix is added describing and illustrating the manner in which case records should be drawn up and kept in private and hospital practice respectively.

The first part deals with the physiology of the female genital organs and includes a section on rape. This is a matter not usually treated upon in books devoted to obstetrics and the inclusion of such an unsavoury subject is an innovation which is not likely to meet with universal approval.

The second part is devoted to the consideration of normal pregnancy and the sections bearing on the development of the fœtus and placenta are sufficiently well written, but it is a matter of regret that the formation of the decidua reflexa, as detailed on p. 47, is not described in accordance with the modern views of von Spee and Peters. The results of these observers, which have so radically changed our conceptions as to the process by which the ovum becomes embedded, are scarcely treated. The methods of examining the pregnant woman are dealt with at great length and the general lines laid down for the guidance of the student are to be commended.

The third part deals with pathological pregnancy. One is sorry to see that the words deciduoma malignum are still applied to the growth now known as chorion epithelioma, though the latter term is mentioned. The older term ought by now to be dropped out of obstetrical nomenclature. The section on cystic disease of the chorion is dealt with in moderate fashion, whilst the various other diseases and anomalies of the decidua and chorion have space allotted to them. In the treatment of placenta prævia the author prefers manual dilatation of the cervix and podalic version, either bi-polar or internal, and he considers the use of Champetier's bag as inferior to these methods. This is certainly not the experience of obstetricians in this country.

In accidental hæmorrhage he believes in rupture of the membranes, ergot, and rapid cervical dilatation, but does not mention the extremely successful results obtained of late years by Irish obstetricians by the use of the binder and vaginal tamponade. There is a good description of the various fœtal deformities illustrated by a great number of drawings and a long section is devoted to antenatal fœtal disease. Amongst the diseases of the pregnant uterus occurs a section on "Rheumatism of the uterine muscle" which the author says is "a rare disease." Much space is given to the sections concerning eclampsia, and the subject is well treated. The author thinks highly of veratrum viride in the treatment of convulsions and also commends nitroglycerine. He does not think much of venous saline infusion, but prefers rectal saline injections. He strongly favours the early and intelligent emptying of the uterus, and enters a protest against the term "accouchment forcé" as applied to this process. A section is given to the consideration of ectopic gestation, but the latter-day view that the ectopic gestation developes in the wall of the tube and not in its lumen finds no mention.

Part four treats of physiological labour and is well written and lavishly illustrated.

Part five discusses pathological labour. With many of the author's views it is impossible to agree. Thus in the treatment of persistent occipito-posterior positions he advocates the application of forceps to the unrectified head rather than the manœuvre of manual rotation, and also advocates anterior rotation by means of the forceps, a method against which, as he himself admits, much opposition has been aroused. On reading the text relating to the treatment of post-partum hæmorrhage we think that Dr. Edgar does not lay sufficient stress upon the necessity of emptying the uterus by the hand in grave bleeding. It cannot be too strongly insisted on that no uterus that is bleeding is empty; the cavity always contains clot if nothing else. Such clot is as potent in preventing retraction as retained placenta would be, and the obvious indication, therefore, is to empty it as a preliminary to hæmostatic applications whatever their nature. Obstructed labour due to pelvic deformity is efficiently treated and attention is called to Prochownik's dietary for reducing the size of the fœtus in pregnant women having deformed pelves.

Parts six and seven concern the puerperium, both physiological and pathological. In the sections allotted to puerperal sepsis the distinction between "septic" and "putrid" endometritis is followed. This appears to us to be a mistake, not only on account of the singularly inappropriate verbal distinction drawn between two processes which all would admit to be equally the result of sepsis, but because no modern bacteriological authority who has paid attention to this subject would allow that any hard and fast line can be drawn between cases of pure streptococcal infection and those that are co-incidentally or subsequently infected by the colon bacillus.

Parts eight and nine treat of the infant and are fully and well written, whilst Part ten is devoted to obstetric operations. Dr. Edgar is not a believer in unnecessary interference with labour, and as may be seen by a perusal of p. 887, is inclined to let nature take its own course even in a slow second stage due to a rigid perinæum. He holds up to obloquy the "harmless low forceps operation" performed in such cases as a fertile cause of ruptured perinæum.

The general get up of the book is very handsome and the illustrations are exceptionally numerous and many of them are very beautifully executed. But there is in this connection one criticism we would wish to make which is that the large majority of the nude figures illustrated in this book are totally unnecessary and the points to be brought out in them could have been equally well indicated by drawings less calculated to offend decency. We do not strip patients in the consulting room, and, seeing that the student, when he comes to practice for himself will have to conform to the general rules of decency which govern the examination of all women, whether in hospital or private practice, it would be far better to accustom him by illustrations to the actual conditions under which he will have to work.

A Short Practice of Gynæcology. By Henry Jellett, B.A., M.D., B.Ch., B.A.O. (Dublin University), F.R.C.P.I., L.M., ex-Assistant Master, Rotunda Hospital, Dublin. Second edition. Pp. 398, with 223 illustrations. London: J. and A. Churchill, 1903. Price 10s. 6d.

The first edition of this work has had a well deserved popularity and this second edition, revised and enlarged, is a distinct improvement on the first. The illustrations have been increased numerically, and many of the old ones have been greatly improved, and there is no doubt that this has been a step in the right direction. Works on gynæcology must be well illustrated to be of real value to the student, and the more the pathological side is illustrated the more easy will the study of the diseases of women become. The chapters on gynæcological operations are exceedingly good and the pictures show clearly what is intended to be done. We could have wished that the chapter on dysmenorrhœa had been re-written, for it is entirely controversial and will not teach the student much, in fact, will leave him in a very confused state. No indications for the treatment of dysmenorrhœa are given in the chapter, although the operative treatment of this symptom is given later. Apart from this chapter, however, the book is written in a scientific spirit and we can most confidently recommend it alike to the student and the practitioner.

PUBLICATIONS RECEIVED.

The Editor begs to acknowledge receipt of the following publications:—

"A Text-book of the Diseases of Women." Barton Cooke Hirst. *W. B. Saunders, Philadelphia and London.*

"A Manual of Obstetrics." J. King. *Henry Kempton, London.*

"Charles White, F.R.C.S., a Great Provincial Surgeon and Obstetrician of the Eighteenth Century." Charles J. Cullingworth. *Glaisher, London.*

"Die Errichtung Geburtshilflicher Polikliniken au Hebammenschulen." D. Fritz Frank. *Karken, Berlin.*

Pamphlets.

"The Effect of the Midwives' Act of 1902 on Irish Training Institutions for Nurses." *(Reprinted from "The Medical Press and Circular.")*

"Die Behandlung der Regelmässigen Nachgeburtsperiode." A. O. Lindfois. *(Reprinted from "Handbuch der Geburts.")*